ICORIS2024
The 6th International Conference on Cybernetics and Intelligent System

IEEE INDONESIA SECTION

ICORIS 2024 | HYBRID CONFERENCE

6TH INTERNATIONAL CONFERENCE ON CYBERNETICS AND INTELLIGENT SYSTEMS

"Creating Datasets Based on Local Wisdom to Support National Sovereignty"

29-30th November 2024

Sahid Surakarta University,
Solo - Central Java , Indonesia

Host

Co-Host

ICORIS2024

The 6th International Conference on Cybernetics and Intelligent System

PROGRAM BOOK
ICORIS 2024

The 6rd International Conference
on Cybernetics and Intelligent Systems

SAHID SURAKARTA UNIVERSITY
2024

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PREFACE

It is our great pleasure to present 6rd International Conference on Cybernetics and Intelligent Systems (ICORIS), which was organized on 29th - 30th November 2024 at Universitas Sahid Surakarta - Central Java province, Indonesia.

This years' theme is "Creating Datasets Based on Local Wisdom to Support National Sovereignty". ICORIS 2024 brings together an interdisciplinary community of experts to discuss innovative theories, methodologies, and applications across diverse areas such as machine learning, robotics, neural networks, intelligent control systems, and cyber-physical systems. With a shared goal of advancing the frontiers of knowledge and promoting collaboration, this conference aims to bridge the gap between theoretical research and real-world applications.

There are 411 papers submitted from eight countries, and only 152 papers are accepted. The accepted papers will be presented in 7 regular sessions virtually and onsite. These papers will be published in the conference proceedings volume. All accepted papers are submitted to IEEEXplore. IEEE Conference Number: #63540.

On behalf of the ICORIS 2024 organizers, We extend our heartfelt gratitude to the authors, reviewers, and organizing committee for their invaluable contributions. A special thanks goes to our keynote speakers and sponsors, whose support and expertise have greatly enriched the conference. Finally, thanks to all lecturers and staff of Universitas Sahid Surakarta and other parties that directly and indirectly make this event successful.

Warm Regards.
Evi Triandini (Organizing Chair)

OPENING SPEECH

Distinguished guests, esteemed colleagues, honorable speakers, co-hosts, sponsors, and participants from around the world,

Good morning, and welcome to Universitas Sahid Surakarta. It is a profound honor for us to host this year's 6th International Conference on Cybernetics and Intelligent Systems (ICORIS 2024) here in Central Java, Indonesia. On behalf of Universitas Sahid Surakarta, I extend our warmest greetings to each of you and express our deepest gratitude for your presence at this prestigious event.

The theme of this year's conference, *"Creating Datasets Based on Local Wisdom to Support National Sovereignty,"* is both timely and crucial. In our rapidly advancing technological landscape, the significance of incorporating local cultural insights into data development has grown immensely. By integrating our local wisdom with cutting-edge advancements, we have the unique opportunity to create resources that not only promote national development but also strengthen our shared identity and preserve our cultural heritage.

Universitas Sahid Surakarta is proud to collaborate with our distinguished co-hosts and sponsors in making this event a success. Your partnership enhances the quality and impact of this conference and affirms our shared commitment to promoting research, innovation, and development in cybernetics and intelligent systems. We are confident that your diverse perspectives and invaluable contributions will enrich our discussions, fostering knowledge that will inspire and guide us toward solutions that benefit both our local communities and the global society.

Over the next two days, we look forward to insightful presentations, meaningful discussions, and innovative collaborations. Let us use this opportunity to strengthen our connections, share our knowledge, and create impactful solutions that uphold national sovereignty while celebrating and preserving the local wisdom that defines us.

Once again, welcome to ICORIS 2024. May this conference be an inspiring, productive, and unforgettable experience for all.

Thank you, and let us together make ICORIS 2024 a resounding success.

Rector

Sri Huning Anwariningsih

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- Dr. Puspa Setia Pratiwi, PhD (Indonesia International Intitut For Life-Science (i3l))

PROGRAM STRUCTURE

Saturday, 30 November 2024

Venue: Sahid Surakarta University

Conference Opening:

07:00 - 07:30	Event Preparation
07:30 - 07:45	Participant Registration
08:00 – 09:25	Opening:
	Singing the National Anthem "Indonesia Raya"
	Singing the "Sahid University Surakarta" Mars
	Opening Dance (Gambyong Dance)
	Prayer
	Speech by the Chair of the Committee
	Speech by the Chair of Coris
	Speech by the Rector of Sahid University Surakarta (officially opening the event)
	Group Photo Session
09:25-09:40	Coffee Break

Keynote Session:

09:45 - 10:30	Keynote Speaker 1 **Dr. Dechrit Maneetham (Rajamangala University of Technology Thanyaburi)**
10:30 - 11:15	Keynote Speaker 2 **Prof. Ir. Zainal Arifin Hasibuan, MLS.,Ph.D (Indonesia Computer University)**
11:15 - 11:45	Keynote Speaker 3 **Prof. Dr. Kusrini, M.Kom (AMIKOM University)**
11:45 - 12:15	Q&A
12:15 - 13:00	Ishoma (Rest, Pray, and Lunch)

Parallel Sessions for Paper Presentation

13:00 - 13:05	Breakout Room Preparation
13:05 - 14:50	Paper Presentations by Authors (Session 1)
12:15 - 13:00	Coffee Break
15:00 - 16:40	Paper Presentations by Authors (Session 2)

Conference Closing:

16:40 - 16:45	Event Preparation
16:45 - 17:00	Closing Ceremony - Announcement of Best Paper Award - Announcement of HOST ICORIS 2025 - Closing Ceremony by the Program Committee Chair: Husni Teja Sukmana, PhD

PARAREL PRESENTATION SCHEDULE

Day/Session	Time	ONSITE		VIRTUAL											
		TRACK 1		TRACK 2		TRACK 3		TRACK 4		TRACK 5		TRACK 6		TRACK 7	
November 30, 2024	13:10 - 13:20 WIB / UTC+7	IS/IT	268	IS/IT	20	CS/I	360	CS/I	25	CS/I	180	CS/I	394	CE/CS	9
Saturday	13:20 - 13:30 WIB / UTC+7	IS/IT	278	IS/IT	30	CS/I	364	CS/I	29	CS/I	182	CS/I	396	CE/CS	10
Session 1	13:30 - 13:40 WIB / UTC+7	IS/IT	269	IS/IT	52	CS/I	365	CS/I	36	CS/I	183	CS/I	404	CE/CS	35
	13:40 - 13:50 WIB / UTC+7	IS/IT	98	IS/IT	65	CS/I	366	CS/I	73	CS/I	197	CS/I	407	CE/CS	37
	13:50 - 14:00 WIB / UTC+7	CS/I	17	IS/IT	55	CS/I	369	CS/I	75	CS/I	204	CS/I	411	CE/CS	198
	14:00 - 14:10 WIB / UTC+7	CS/I	22	IS/IT	13	IS/IT	353	CS/I	77	CS/I	208	CS/I	359	CE/CS	200
	14:10 - 14:20 WIB / UTC+7	CS/I	83	IS/IT	12	IS/IT	203	CS/I	85	CS/I	220	MM	41	CE/CS	211
	14:20 - 14:30 WIB / UTC+7	CS/I	89	SE	406	IS/IT	320	CS/I	87	CS/I	223	MM	105	CE/CS	222
	14:30 - 14:40 WIB / UTC+7	CS/I	143	SE	381	IS/IT	344	CS/I	92	CS/I	251	MM	107	CE/CS	280
	14:40 - 14:50 WIB / UTC+7	CS/I	271	SE	382	IS/IT	84	CS/I	124	CS/I	291	MM	24	CE/CS	281
Session 2	15:00 - 15:10 WIB / UTC+7	CS/I	405	SE	5	IS/IT	373	CS/I	128	CS/I	292	MM	160	CE/CS	295
	15:10 - 15:20 WIB / UTC+7	SE	401	SE	79	IS/IT	4	CS/I	134	CS/I	298	MM	163	CE/CS	305
	15:20 - 15:30 WIB / UTC+7	MM	408	SE	150	IS/IT	206	CS/I	135	CS/I	310	MM	164	CE/CS	311
	15:30 - 15:40 WIB / UTC+7	CE/CS	323	SE	167	IS/IT	270	CS/I	143	CS/I	325	MM	181	CE/CS	358
	15:40 - 15:50 WIB / UTC+7			SE	196	IS/IT	282	CS/I	140	CS/I	326	MM	185	CE/CS	399
	15:50 - 16:00 WIB / UTC+7			SE	214	IS/IT	316	CS/I	151	CS/I	343	MM	213	CE/CS	402
	15:00 - 16:10 WIB / UTC+7			SE	277	IS/IT	317	CS/I	156	CS/I	351	MM	383	CE/CS	409
	16:10 - 16:20 WIB / UTC+7			SE	379	IS/IT	319	CS/I	169	CS/I	355	MM	112	CE/CS	410
	16:20 - 16:30 WIB / UTC+7			SE	201	IS/IT	179	CS/I	178						
	16:30 - 16:40 WIB / UTC+7			SE	400	IS/IT	363	SE	302						

TECHNICAL SESSION SCHEDULE

Day/Date : Saturday, 30th November 2024
Time : 13.10-16:40
Zoom ID : 992 8069 5847
Passcode : 690812

https://telkomsel.zoom.us/j/99280695847?pwd=GUiQykqglU00Ed389OQsRrfujbhDnb.1

Track 1: ONSITE Session Chair: Dr. Sandy Kosasi, MM., M.Kom. Session co-host : Panji and Silmi				
Time	**Topics**	**#**	**Author**	**Title**
13:10 - 13:20 WIB / UTC+7	IS/IT	268	Wahyu Sardjono, Widhilaga Gia Perdana, Erma Lusia, Maryani Maryani, Astari Retnowardhani and Muhammad Zarlis	Evaluation Model of Urban Regional Knowledge Management System in Indonesia for Natural Disaster Mitigation
13:20 - 13:30 WIB / UTC+7	IS/IT	278	Wahyu Sardjono, Dewi Sagita Pranata and Muhammad Isamesal	An Examination of the Possible Application of Artificial Intelligence Audit Process in Organizations
13:30 - 13:40 WIB / UTC+7	IS/IT	269	Wahyu Sardjono, Widhilaga Gia Perdana, Sarim Sarim, Astari Retnowardhani, Maryani Maryani and Erma Lusia	Determining Key Performance Indicators of IT Balance Scorecards for Measuring Information Technology Performance in Companies
13:40 - 13:50 WIB / UTC+7	IS/IT	98	Galih Dea Pratama, Haryono Soeparno, Yulyani Arifin and Ford Lumban Gaol	Towards the Fun Therapy on People with Mental Disorder – Analysis on Serious Game for Mental Therapy
13:50 - 14:00 WIB / UTC+7	CS/I	17	Jeremy Simatupang, Julius Lie, Ghinaa Nabiilah and Jurike Moniaga	Investigating the Effectiveness of Feature Extraction Techniques in Predicting Emotions from Indonesian Tweets Using Machine Learning

14:00 - 14:10 WIB / UTC+7	CS/I	22	Nicholas Chao, Rafael Jo, Ghinaa Nabiilaha and Jurike Moniagaa	Thread User Sentiment Analysis Based on Text using LGBM, SVM, and Logistic Regression Algorithm
14:10 - 14:20 WIB / UTC+7	CS/I	83	Jensen Ramadhaniel Putra Esene, Fabio Valentino William, Ghinaa Zain Nabiilah and Jurike Moniaga	Detecting Hate Speech on Indonesian Twitter Using Logistic Regression
14:20 - 14:30 WIB / UTC+7	CE/CS	323	Martinus Bagus Wicaksono, Dechrit Maneetham and Petrus Sutyasadi	Open-Source Control System Platform for a 5-Axis Robot Using PID and IoT
14:30 - 14:40 WIB / UTC+7	CS/I	143	Vinsensius O. Sutedja, Frans Andreas, Jurike V. Moniaga and Ghinaa Z. Nabiilah	A Motor Activity Analysis as a Depression Indicator: Predictive Approach Using A Hybrid CNN and LSTM Network.
14:40 - 14:50 WIB / UTC+7	CS/I	271	Ashri Shabrina Afrah, Muhammad Faisal, Abdul Aziz and Supriyono Supriyono	Comparison of the Performance of Transformer Text Summarization Models in Indonesian Language: PEGASUS and GPT-2
Session 2				
15:00 - 15:10 WIB / UTC+7	CS/I	405	Dionisius Yosa Ardhito, Dahlan Susilo and Diyah Ruswanti	Employee Attendance Through Facial Recognition Using The Haar Cascade Classifier Method
15:10 - 15:20 WIB / UTC+7	SE	401	Nova Agustina, Muchammad Naseer, Harya Gusdevi and Danny Aidil Rismayadi	Development of a Public Complaint Classification Model to Support E-Government using IndoBERT
15:20 - 15:30 WIB / UTC+7	MM	408	Evi Triandini, Djoko Kuswanto, Padma Nyoman Crisnapati and I Made Suandana Pande Astika	Preserving Balinese Culture Using Augmented Reality Technology for Ogoh-ogoh Art

Track 2 : VIRTUAL Session Chair: Prof. Dr. Henderi, M.Kom Session co-host : Yazid and Yunita				
Time	**Topics**	**#**	**Author**	**Title**
13:10 - 13:20 WIB / UTC+7	IS/IT	20	Angela Fransiska, Michelle Siauw and Ilham Prabowo	E-Tax Systems and Tax Knowledge Impact on Small, and Medium Enterprises Taxpayer Compliance In Indonesia
13:20 - 13:30 WIB / UTC+7	IS/IT	30	Ni Luh Gede Pivin Suwirmayanti, Ni Luh Gede Pivin Suwirmayanti, I Ketut Gede Darma Putra, Made Sudarma, I Made Sukarsa and Emy Setyaningsih	Performance Comparison of the Invasive Weed Optimization K-Means Algorithm with Particle Swarm Optimization K-Means for Banking Data
13:30 - 13:40 WIB / UTC+7	IS/IT	52	Inayatulloh Inayatulloh, Loso Judijanto, Denok Sunarsi, Rofiq Noorman Haryadi, Sugeng Riyanto and Prasetya Cahya Saputra	Adoption Of Blockchain Technology To Prevent Misuse Of School Operational Assistance Funds (BOS) in Indonesia
13:40 - 13:50 WIB / UTC+7	IS/IT	65	Christina Lorenza and Eriana Astuty	AI-Driven Revolution: Effectiveness of Product Ads on Social Media Using Midjourney
13:50 - 14:00 WIB / UTC+7	IS/IT	55	Inayatulloh Inayatulloh, Yasri Yasri, Ahmad Fathurrozi, Muhammad Yasir, Fried Sinlae, Tyastuti Sri Lestari, Wowon Priatna, Indra Kusumadi Hartono and Achmad Noe'Man	Blockchain Technology Supports Employee Career Management to Increase Transparency of Employee Career Achievements
14:00 - 14:10 WIB / UTC+7	IS/IT	13	I Ketut Dedy Suryawan, Kusrini Kusrini, Arief Setyanto and Ema Utami	Enhancing Financial Trading Strategies with Pattern Recognition: A Systematic Literature Review of Methods, Trend and Challenge
14:10 - 14:20 WIB / UTC+7	IS/IT	12	I Made Adi Purwantara, Kusrini Kusrini, Arief Setyanto and Ema Utami	Deep Learning in Financial Markets: A Systematic Literature Review of Methods and Future Direction for Price Prediction

14:20 - 14:30 WIB / UTC+7	SE	406	David Jonathan Kawengian, Novrando Natanael Hizkia and Semmy Wellem Taju	Android-Based Restaurant Food Donation and Distribution App for Helping Hands Using Global Positioning System
14:30 - 14:40 WIB / UTC+7	SE	381	Muhammad Azwar Daembana, Maulana Ikhsan Kamil and Teguh Prasandy	Optimizing User Experience and Transforming the Interface of the JMO BPJS Ketenagakerjaan Application: Evaluating JHT Claims in Pontianak Using the PACMAD Method
14:40 - 14:50 WIB / UTC+7	SE	382	Mayla Zida Rahma Izzati, Risma Ayu Dwi Septyani, Octaviera Nanda Aji Cahyani and Teguh Prasandy	Optimizing Economates: Lean UX-Driven Redesign for Enhanced Economic Literacy, User Satisfaction, and a Smarter Learning Experience
Session 2				
15:00 - 15:10 WIB / UTC+7	SE	5	Ni Nyoman Utami Januhari, Arief Setyanto, K Kusrini and Ema Utami	The Influence of Cultural Factors in Software Quality Assessment Models A systematic literature study
15:10 - 15:20 WIB / UTC+7	SE	79	Faris Agastya, Maryani Maryani and Hendry Hartono	Analysis of the Influence Wakuliner.com Website Quality on Customer Trust, Experience, and Loyalty Using WebQual 4.0 Method
15:20 - 15:30 WIB / UTC+7	SE	150	Putu Adi Guna Permana and Paula Dewanti	Analysis of Sports Match Charts and Scoring Applications Based on Website and Mobile Using the System Usability Scale Method
15:30 - 15:40 WIB / UTC+7	SE	167	Luthfi Khan Alfaridzzi, Masagus Padadingsiang Luzyrill Attar and Indrajani Sutedja	Effectiveness of Scrum in Software Development a Bibliometric Analysis
15:40 - 15:50 WIB / UTC+7	SE	196	Muhamad Rayvan, Pio Simanullang, Rendy Trisukma, Riyan Leandros and Silvia Ayunda	User Experience Analysis On M- Bayar Electronic Money Application Using In-Person Usability Testing Method
15:50 - 16:00 WIB / UTC+7	SE	214	Yonky Pernando, Ford Lumban Gaol, Haryono Soeparno and Yulyani Arifin	Software Quality Assessment Methods and Standards in Weld Defect Detection for Shipbuilding

15:00 - 16:10 WIB / UTC+7	SE	277	Mei Sagala, Pratiwi Pandiangan, Rizal Firdaus, Riyan Leandros and Andika Hairuman	Usability Analysis and UI Improvements of Museum Nasional Website Using Heuristic Evaluation Methodology
16:10 - 16:20 WIB / UTC+7	SE	379	Irene Nur Arta Purba Siboro, Jamson Siallagan, Asmat Purba, Lasmah Ambarita, Sostenis Nggebu and Lasino	Information Security Governance in Educational Institutions Using the COBIT 5 Framework
16:20 - 16:30 WIB / UTC+7	SE	201	Alif Kurnia, Hilmi Nugroho and Riyan Leandros	Sedudo Nganjuk Website Usability Analysis Using User Experience Questionnaire
16:30 - 16:40 WIB / UTC+7	SE	400	Alma Fikri Setya Nugraha, Farid Fitriyadi and Evelyne Henny Lukitasari	UI/UX Design for Triwindu Market Surakarta

Track 3 : VIRTUAL Session Chair: Jani Kusanti, S.Kom., M.Cs. Session co-host : Naufal and Sendi				
Time	**Topics**	**#**	**Author**	**Title**
13:10 - 13:20 WIB / UTC+7	CS/I	360	Julaluk Watthananon, Prapas Thongrak, Yamin Thwe and Navarat Saekhow	Thailand Food Price Forecasting: Comparative Analysis of Machine Learning Models
13:20 - 13:30 WIB / UTC+7	CS/I	364	Nicholas Axel Tanujaya, Jose Gabriel Thendito, Marcell Risandi Putra, Fernando Barina, Owen Kartolo, Karli Eka Setiawan and Alfi Yusrotis Zakiyyah	Comparison of K-means, Gaussian Mixture, and Hierarchical Clustering Models On Countries's Economic Freedom Index
13:30 - 13:40 WIB / UTC+7	CS/I	365	Tinuk Agustin, Indrawan Ady Saputro, Mochammad Luthfi Rahmadi, Fito Patria, Aradea Pinkan Kartiningtyas and Dicky Kurniawan	Effectiveness of Random Search in Enhancing CNN Performance for Rice Plant Disease Classification
13:40 - 13:50 WIB / UTC+7	CS/I	366	Indrawan Ady Saputro, Moch. Hari Purwidiantoro, Febrianta Surya Nugraha, Ina Sholihah Widiati and Sri Widiyanti	AI-Powered Steganographic Techniques: A Comparison of Traditional Methods and Modern Machine Learning Approaches
13:50 - 14:00 WIB / UTC+7	CS/I	369	Gat Gat, Irawan Wingdes, Tri Widayanti, Tony Wijaya and Kusrini Kusrini	Using Server-side Processing Techniques to Optimize Data Presentation Responsiveness
14:00 - 14:10 WIB / UTC+7	IS/IT	353	Carola Basuki, Chairani Putri Pratiwi, Akbar Zaidan Rohman, Hasyid Fitra Hasaini, Leandro Nardphine Halomoan, Ricardo Cuthbert and Verdhinan Hendranata	Transforming Fashion Marketplaces: A Design Thinking Approach to AR and AI Integration
14:10 - 14:20 WIB / UTC+7	IS/IT	203	Dian Kurnianingrum, Isma Addi Jumbri, Mila Andria Savitri, Nugraha Nugraha, Disman Disman and Rachel Monica	Decoding Financial Positivity: Sentiment Analysis of Mandiri Sekuritas's Twitter Posts

14:20 - 14:30 WIB / UTC+7	IS/IT	320	Putu Ayu Devika Santini Vigneswari, Humaira Puteri and Ivan Diryana Sudirman	A Sentiment Analysis Review of Kopi Kenangan App Customer Reviews: A Case Study on Approaches to Customer Experience Improvement
14:30 - 14:40 WIB / UTC+7	IS/IT	344	Kusumah Arif Prihatna, Agung Hari Sasongko, Hariyatno and Erland Barlian	Influence of Information Quality by Recommendation System on Purchase Intention mediated by Perceived Ease of Use and Perceived Usefulness
14:40 - 14:50 WIB / UTC+7	IS/IT	84	Sandy Kosasi, Po Abas Sunarya, Susanty Margaretha Kuway, I Dewa Ayu Eka Yuliani, Utin Kasma and Budi Susilo	Enhancing Business Agility: The Effects of IT Capability and Digital Transformation
Session 2				
15:00 - 15:10 WIB / UTC+7	IS/IT	373	Adhi Murti Citra Amalia H, Nisrin Husna and Satria Fadil Persada	Promoting Indonesian Batik as a Symbol of National Identity: A Bibliometric Approach
15:10 - 15:20 WIB / UTC+7	IS/IT	4	Al Naufal Navitama Putra, Dinda Qurnatuain, Garrybaldi Haidar Nugraha and Lily Leonita	The antecedent of Impulsive Buying Decisions through Live Streaming Technology and Flash Sale in E-commerce
15:20 - 15:30 WIB / UTC+7	IS/IT	206	Maria Grace Herlina, Alexandra Li Budiharto, Elizabeth Margaretha Lukito and Karto Iskandar	The Effect of Social Media Influencers on Business Sustainability: Understanding Customer Behavior Change Towards Sustainable Usage Patterns
15:30 - 15:40 WIB / UTC+7	IS/IT	270	Okky Rizkia Yustian, Chyntia Ika Ratnapuri and Desi Indrawati	ENHANCING TOURISM INNOVATION THROUGH DISRUPTIVE TECHNOLOGY AND STRATEGIC ALLIANCES: EVIDENCE FROM POPULAR DESTINATIONS IN WEST JAVA
15:40 - 15:50 WIB / UTC+7	IS/IT	282	Maria Grace Herlina, Karto Iskandar and Ika Triana	Networked Intelligence: The Mediating Impact of Social Network Applications on Organizational Learning and Knowledge Sharing in Indonesia

15:50 - 16:00 WIB / UTC+7	IS/IT	316	Arisyi Yusran, Marviola Hardini, Ihsan Nuril Hikam, Po Abas Sunarya and Untung Rahardja	Transforming Financial Services with Decentralized Finance and Blockchain Technology
15:00 - 16:10 WIB / UTC+7	IS/IT	317	Eta Pradivta, Fitra Putri Oganda, Elang Tito Persada, Henderi Henderi and Untung Rahardja	Scalability and Security Challenges of Cloud Computing in the Banking Industry
16:10 - 16:20 WIB / UTC+7	IS/IT	319	Ferry Ariyanto, Nuke Puji Lestari Santoso, Muhammad Farhan Kamil and Untung Rahardja	Innovative Mobile Banking Solutions Powered by 5G: Ensuring Security and Seamless Connectivity
16:20 - 16:30 WIB / UTC+7	IS/IT	179	Stefanus Rumangkit, Aloysius Bagas Pradipta Irianto and Antonius Satria Hadi	The Impact Perceived Desirability, Propensity to Act, dan Perceived Feasibility On Technoprenurial Commitment Based On A Entreprenurial Event Theory
16:30 - 16:40 WIB / UTC+7	IS/IT	363	Febrianta Surya Nugraha, Widiyanto Hadi and Muhammad Setiyawan	Ideation And Simulation Roles In Identifying Functional Requirements Of A Multi-Organizational Digital Library Platform

Track 4 : VIRTUAL
Session Chair: Edy Victor Haryanto, S.Kom.,M.Kom.
Session co-host : Annisa and Eunike

Time	Topics	#	Author	Title
13:10 - 13:20 WIB / UTC+7	CS/I	25	Hendrik Carlo, Kelvin Andreas, Alfi Yusrotis Zakiyyah and Meiliana Meiliana	Comparative Analysis of Fungal Infections Classification in Apple Leaves Using CNN versus CNN and GLCM Features
13:20 - 13:30 WIB / UTC+7	CS/I	29	Ricky Aurelius Nurtanto Diaz, Ricky Aurelius Nurtanto Diaz, I Ketut Gede Darma Putra, Made Sudarma and I Made Sukarsa	Performance Evaluation of Intrusion Detection System with SVM
13:30 - 13:40 WIB / UTC+7	CS/I	36	Salwa Umar Qureshi, Alireza Souri and Nihat Inanç	Optimizing Automotive Cybersecurity with Cost-Sensitive Decision Forest Algorithm in IoV
13:40 - 13:50 WIB / UTC+7	CS/I	73	Ivan Setiawan, Yithro Paulus Tjendra, Alfi Yusrotis Zakiyyah and Meiliana Meiliana	Comparing Machine Learning Algorithms with Ensemble Model using Random Oversampling for Predicting Student's Dropouts
13:50 - 14:00 WIB / UTC+7	CS/I	75	Robert Wiliam, Charlie Lufian, Meiliana Meiliana and Alfi Yusrotis Zakiyyah	Recognitions of Bahasa Isyarat Indonesia (BISINDO) Alphabets using SVM and Mediapipe
14:00 - 14:10 WIB / UTC+7	CS/I	77	Arya Maulana Bratajaya Akmal, Defara Putra Nurimaba, Jurike V Moniaga and Ghinaa Zain Nabiilah	Leveraging Deep Learning for Early Detection of Stomach Cancer: A Convolutional Neural Network Approach
14:10 - 14:20 WIB / UTC+7	CS/I	85	Richard Santoso and Alexander Gunawan	Detecting Account Takeover (ATO) in Fintech Companies Using Machine Learning
14:20 - 14:30 WIB / UTC+7	CS/I	87	Vincent Oei, Pieter Effendy, Lili Wulandhari and Islam Alam	Exploring the Effectiveness of Adding Sentiment Analysis and Trends into Random Forest

				Machine Learning Algorithm to Predict Bitcoin Price Action
14:30 - 14:40 WIB / UTC+7	CS/I	92	Ahmad Fauzan Kanz, Luvky Pratama Johanes, Lili Ayu Wulandhari and Islam Nur Alam	Predictive Model of Stunting in Children Using Artificial Intelligence
14:40 - 14:50 WIB / UTC+7	CS/I	124	Julian D. Dzaky, Jason A. Saputra, Nicodemus N. Singale, Hanis A. Saputri and Azani C. Sari	Improving Dns Server Resilience Against DDOS Attacks Through Anycast Routing
Session 2				
15:00 - 15:10 WIB / UTC+7	CS/I	128	Samuel Bangun, Febrio Wijaya and Hanis Saputri	Implementation of A* and Dijkstra Algorithms for optimal Pathfinding: A Case Study of Nearest Hospital Location from Bina Nusantara University
15:10 - 15:20 WIB / UTC+7	CS/I	134	Mochammad Haldi Widianto, Mulyani Karmagatri, Rachmi Kumala Widyasari, Aris Darisman and Hazmilah Hasan	Systematic Literature Review: Deep Learning and Machine Learning Analysis for Batik Peranakan Tionghoa Datasets
15:20 - 15:30 WIB / UTC+7	CS/I	135	Teresa Sheryl, Anthonio Lais, Hanis Saputri and Azani Sari	Text Prediction using Attention Mechanism
15:30 - 15:40 WIB / UTC+7	CS/I	143	Vinsensius O. Sutedja, Frans Andreas, Jurike V. Moniaga and Ghinaa Z. Nabiilah	A Motor Activity Analysis as a Depression Indicator: Predictive Approach Using A Hybrid CNN and LSTM Network.
15:40 - 15:50 WIB / UTC+7	CS/I	140	Ihsaan Hardyanto, Reynaldo Marchell Bagas Adji, Jurike V Moniaga and Ghinaa Zain Nabiilah	Analysis of Accuracy Between SVM and CNN Algorithms in Facial Expression Recognition
15:50 - 16:00 WIB / UTC+7	CS/I	151	Andrano Mario Hitipeuw, Yus Natali and Catur Apriono	Design and Analysis of Optical Fiber Network Link Design between Sendawar and Long Bagun
15:00 - 16:10	CS/I	156	Ezra Arya Wijaya, Samuel Benediktus Meliala, Muhammad Fadlan	Sign Language Translator for SIBI

WIB / UTC+7			Hidayat and Irene Anindaputri Iswanto	
16:10 - 16:20 WIB / UTC+7	CS/I	169	Golda Salazar, Adila Nashira Yuhanas, Renaldy Fredyan and Muhammad Amien Ibrahim	User Sentiment Analysis of Online Transportation Platforms Using K-Means and K-Nearest Neighbor
16:20 - 16:30 WIB / UTC+7	CS/I	178	Khaerunnisa Hanapi, Sitti Harlina, Suci Ramadhani Arifin, Arham Arifin, Michael Oktavianus and Ahyuna	Analyzing XSS Attack Information Content on Social Media
16:30 - 16:40 WIB / UTC+7	SE	302	Hanafi Hanafi, Muhammad Fuat Asnawi, Nanang Fitria Kurniawan, Adi Suwondo, Anas Nasrullah and Chendri Irawan Satrio Nugroho	Topic Modelling Analysis on Indonesian News Using BERT Topic Model

Track 5 : VIRTUAL Session Chair: Hardika Khusnuliawati, S.Kom., M.Kom. Ferdi and Lam Alif				
Time	**Topics**	**#**	**Author**	**Title**
13:10 - 13:20 WIB / UTC+7	CS/I	180	Nicholas Hans Muliawan, Frederick Nathan Irmawan, Edbert Valencio Angky and Abram Setyo Prabowo	Long Short Term Memory with MediaPipe's Pose Landmark for Human Activity Recognition
13:20 - 13:30 WIB / UTC+7	CS/I	182	Jolin Tiomar, Stephanie Angela, Justin Anthony Sudijanto, Gerry Ezekiel Liwe, Dani Suandi and Dany Eka Saputra	Comparison of Sound Classification Algorithms on NIGENS Dataset
13:30 - 13:40 WIB / UTC+7	CS/I	183	Samuel Tanuwijaya, Jerry Agustinus and Sulistyo Heripracoyo	Analysis The Benefits of ChatGPT Implementation on Student Knowledge Development in Case-Based Learning (CBL)
13:40 - 13:50 WIB / UTC+7	CS/I	197	Nadia Lempan, Nurliah Nurliah, Maechel Maximiliano Gabriel and Wilem Musu	Trend and Correlation Analysis of Instagram Activity Using Data Mining and Statistics
13:50 - 14:00 WIB / UTC+7	CS/I	204	Budi Triandi, Lili Tanti, Ratih Puspasari, Mas Ayoe Elhiyas and Marwan Marwan	Optimizing Diabetes Prediction using Machine Learning with Data Deviation
14:00 - 14:10 WIB / UTC+7	CS/I	208	Ririn Nurdiyanti and Ema Utami	Benchmarking Multiple Machine Learning Algorithms for Sentiment Analysis on Sexual Violence
14:10 - 14:20 WIB / UTC+7	CS/I	220	Devin Jonathan, Johanes Lie, Anderies Anderies and Andry Chowanda	PORTUGUESE MEALS IMAGE RECOGNITION USING CNN MODELS
14:20 - 14:30 WIB / UTC+7	CS/I	223	Delvin Hu, Anderies Anderies and Andry Chowanda	YouTube Videos Clickbait Classification Utilizing Text Summarization and Similarity Score via LLM

14:30 - 14:40 WIB / UTC+7	CS/I	251	Lili Tanti, Budi Triandi, Bob Subhan Riza, Yan Yang Thanri, Juli Iriani and Ratih Puspasari	Detection and Classification Model for Respiratory Diseases Using Machine Learning Techniques
14:40 - 14:50 WIB / UTC+7	CS/I	291	Gede Herdian Setiawan, Made Doddy Adi Pranatha, I Made Budi Adnyana and Komang Budiarta	Improving Helpdesk Chatbot Performance using Levenshtein Distance and N-gram Similarity
Session 2				
15:00 - 15:10 WIB / UTC+7	CS/I	292	Edy Victor Haryanto S, Nita Sari Br Sembiring and Mikha Dayan Sinaga	Implementation of Adaptive Neuro-Fuzzy Inference System (ANFIS) Algorithm for Customer Credit Prediction
15:10 - 15:20 WIB / UTC+7	CS/I	298	Ahmad Hashim Asy'Ari, Mohammad Haris Muzakki, Muh Hanafi, Akhmad Dahlan, Muhamad Yusuf and Hasnatul Hidayah	Application of BERT Modeling in Hadith Category: A Study of NLP on Sohih Bukhori and Muslims
15:20 - 15:30 WIB / UTC+7	CS/I	310	Nuk Ghurroh Setyoningrum, Ema Utami, Kusrini Kusrini and Ferry Wahyu Wibowo	A Comprehensive Survey of Infant Cry Classification Research trends and methods: A Systematic Review
15:30 - 15:40 WIB / UTC+7	CS/I	325	Zakariya Oraibi and Amal Hasan	Classification of Lung and Colon Cancer using a Hybrid CNN Model
15:40 - 15:50 WIB / UTC+7	CS/I	326	Nur Alamsyah, Budiman Budiman, Venia Restreva Danestiara, Imannudin Akbar, Arnold Ropen Sinaga and Reni Nursyanti	Driven Multivariate Regression - Feature Engineering with Random Forest and XGBoost for Accurate Weather Prediction
15:50 - 16:00 WIB / UTC+7	CS/I	343	Uswatun Hasanah and Chuan-Ming Liu	Systematic Literature Review on Deep Learning for Weather Phenomenon Classification
15:00 - 16:10 WIB / UTC+7	CS/I	351	Wiwi Oktriani, Jonathan Tobby Laimeheriwa, Irene Anindaputri Iswanto and Muhammad Fadlan Hidayat	A Survey On Indonesian Hoax Analyzer and Fake News Detection Using Deep Learning Techniques

16:10 - 16:20 WIB / UTC+7	CS/I	355	Maulin Nasari and Alfi Zakiyyah	Exploring the Efficiency of Various GNN Architectures for Node Classification in Social Networks
16:20 - 16:30 WIB / UTC+7	CS/I	133	Jason Sulistyawan, Kuncahyo Nugroho and Bens Pardamean	Systematic Literature Review on Metaheuristic Algorithms in SNP Analysis for Diseases
16:30 - 16:40 WIB / UTC+7	CS/I	161	Kelvin Julian, Kuncahyo Setyo Nugroho, Rudi Nirwantono and Bens Pardamean	Cancer Prediction using Clinical and Genomic Data Fusion: A Systematic Review

Track 6 : VIRTUAL Session Chair: Dr.Eng. Wilem Musu, S.Kom.,MT. Session co-host : Azizun and Bintang				
Time	**Topics**	**#**	**Author**	**Title**
13:10 - 13:20 WIB / UTC+7	CS/I	394	Ichwan Joko Prayitno, Diyah Ruswanti and Firdhaus Hari Saputra Al Haris	Hierarchical K-Means method for clustering Student's Final Assignments Topics in Higher Education
13:20 - 13:30 WIB / UTC+7	CS/I	396	Farid Fitriyadi, Wayan Cishe Fransiska Saputri and Hardika Khusnuliawati	Development of a Web-Based Forecasting System Using the Holt-Winters Exponential Smoothing Method to Improve Accuracy in Predicting Cut Flower Harvest Needs
13:30 - 13:40 WIB / UTC+7	CS/I	404	Green Arther Sandag and Raissa Maringka	Utilizing Transfer Learning For Brain Tumor Detection And Grad-Cam Visual Explanation
13:40 - 13:50 WIB / UTC+7	CS/I	407	Raissa Maringka and Green Sandag	Deep Learning for Explicit Content Classification in Music Lyrics
13:50 - 14:00 WIB / UTC+7	CS/I	411	Adityo Permana Wibowo	Improvement of k-NN Algorithm Performance in Classifying High School Students' Majors
14:00 - 14:10 WIB / UTC+7	CS/I	359	Putri Dhea Marsella, Nur Dina Lessy, Rachel Ovelia Kadang, Sulaiman Hamzah, Muh Fadhil Rahmatullah and Wilem Musu	Applying Multimodal Deep Learning for Identifying Mental Health Indicators in Instagram Content
14:10 - 14:20 WIB / UTC+7	MM	41	Ricardo Laurent and Maryani	Analysis of the Influence of Student's Learning Interest on the Implementation of Augmented Reality in the Education System in Indonesia: A Case Study in High Schools

14:20 - 14:30 WIB / UTC+7	MM	105	Gabio Mega Handoko, Eileen Gunawidjaja, Hanis Amalia Saputri and Azani Cempaka Sari	Implementation of OpenCV and CNN-Keras in Detecting Plastic Waste
14:30 - 14:40 WIB / UTC+7	MM	107	Rael Russel Hutapea, Samdo Jumar Purba, William Tandion, Erna Fransisca Angela Sihotang and Edy Irwansyah	Palm Fruit Ripeness Detection and Counting Using YOLOv8 Algorithm in PTPN IV Medan North Sumatera, Indonesia
14:40 - 14:50 WIB / UTC+7	MM	24	Muhammad Rizky Hidayat, Pavel Azarya Sulistyo, Hansen Oktario, Alexander A S Gunawan and Prasetyo Mimboro	Establishing a Standard Operating Procedure (SOP) for Palm Oil Plantation FFB Image Capture: Utilizing YOLOv8 for Counting and Ripeness Classification
Session 2				
15:00 - 15:10 WIB / UTC+7	MM	160	Devin Setiawan, Andrea S. Karnyoto, Indo Intan and Bens Pardamean	ConvNeXt Model for Breast Cancer Image Classification
15:10 - 15:20 WIB / UTC+7	MM	163	Shanna Carlynda Fernlie, Geovanka Thersia Kurniawan, Puti Andam Suri and Muhamad Fajar	Application of Augmented Reality in Early Childhood Education: A Case Study on Children's Cognitive and Motoric Development
15:20 - 15:30 WIB / UTC+7	MM	164	Levina Jane Saputra, Karina Dwinovera Mulia, Puti Andam Suri and Muhamad Fajar	Blaze Buster Augmented Reality Usability Evaluation
15:30 - 15:40 WIB / UTC+7	MM	181	Vincentia Catherine, Tiffany Joycelyn, Muhamad Fajar and Puti Andam Suri	ZenithAR Augmented Reality Usability
15:40 - 15:50 WIB / UTC+7	MM	185	Aaron Scott Buana, Anselyus Patrick Siswanto, Anderies Anderies and Andry Chowanda	Developing a Robust Face Recognition Algorithm with Anti Spoofing Using InceptionV3 and YOLOv8
15:50 - 16:00 WIB / UTC+7	MM	213	Jonathan Wijaya, Muhammad Abiyyu'Ammaar, I Ketut Dharma Wijaya Kusuma and Alexander A S Gunawan	Enhancing Infrastructure Monitoring: Pothole Detection in Road Images Using YOLOv8 and Open Datasets

15:00 - 16:10 WIB / UTC+7	MM	383	Alexander A S Gunawan	Developing Campus Digital Twin with Integrated 3D Point Clouds and 3D Modeling Techniques
16:10 - 16:20 WIB / UTC+7	MM	112	Mahmud Isnan, Gregorius Elwirehardja, Kuncahyo Setyo Nugroho, Imelda Liana Ritonga, Roby Pahala Januario Gultom, Elida Afni Lubis and Bens Pardamean	InDRI: Intelligent Diagnosis Radiology Images
16:20 - 16:30 WIB / UTC+7	IS/IT	101	Nicholas Pradana Harijanto, Veronica Veronica and Ignatius Edward Riantono	Enhancing Auditing Quality through Big Data Analytics: A Study Leveraging the Technology Acceptance Model in Computing and Processing
16:30 - 16:40 WIB / UTC+7	CS/I	89	Steven Liu Sentiko, Meiliana Meiliana and Alfi Yusrotis Zakiyyah	Gold Price Prediction using Machine Learning and Deep Learning

Track 7 : VIRTUAL Session Chair: Diyah Ruswanti, S.Kom., M.Kom Session co-host : King and Tiva				
Time	**Topics**	**#**	**Author**	**Title**
13:10 - 13:20 WIB / UTC+7	CE/CS	9	Fauzi Khair and Rahmat Sabani	Analysis and Optimizing Solar Panels for Offshore Remote Wellhead Platforms as a Sustainable and Renewable Energy Source
13:20 - 13:30 WIB / UTC+7	CE/CS	10	Padma Nyoman Crisnapati, I Made Darma Susila, I Komang Agus Ady Aryanto, Jaturapith Krohkaew, Ricky Aurelius Nurtanto Diaz and I Made Suandana Astika Pande	Comparative Analysis of Robotic Arm Efficiency: Evaluating PID and Fuzzy-PID Control using Printed Mechanical Structure and ESP8266 Integration
13:30 - 13:40 WIB / UTC+7	CE/CS	35	Christopher Joshua Leksana, Novyandri Taufik Bahtera, Stefanus Rumangkit and Ivan Sangkereng	Integrated Lean Ecodesign And Green Performance: A Comprehensive Model For Sustainable Logistics
13:40 - 13:50 WIB / UTC+7	CE/CS	37	Hany Abdelsalam, Alireza Souri and Nihat Inanç	Enhancing Solar Energy Production Forecasting with Ensemble-based Learning Techniques
13:50 - 14:00 WIB / UTC+7	CE/CS	198	Yudistira Dwi Permana, Rozikul Wijaya, Widya Mulyaningtyas and Kusrini Kusrini	Vehicle Detection Using You Only Look Once V8 Based On Architecture Modification Method
14:00 - 14:10 WIB / UTC+7	CE/CS	200	Kristoforus Naidu, Samuel Alfonsus, Bernard Fabian, Jason Yovan Hermanto and Selvi Lukman	A Dual-Parameter Sensing System for an Environmental Air Monitoring
14:10 - 14:20 WIB / UTC+7	CE/CS	211	Riki Akbar Mc.Dougall, Gian Guido Hibatulloh, Reyhan Seifan Safero, Wan Mohamad Axel Rinaldi and Selvi Lukman	Dual Sensing System for Soil Quality Enchancement
14:20 - 14:30	CE/CS	222	Karldritz Farrel Hanson, Kara Kalani Al Biruni,	Simulation-Based Optimization of Autonomous Vehicles using Genetic Algorithm

WIB / UTC+7			Anderies Anderies and Andry Chowanda	
14:30 - 14:40 WIB / UTC+7	CE/CS	280	Stephanie Angela, Jolin Tiomar, Justin Anthony Sudijanto and Mochammad Haldi Widianto	IoT-Enabled Systems for Automated Cat Care: A Comprehensive Literature Review
14:40 - 14:50 WIB / UTC+7	CE/CS	281	Mas Rina Mustaffa and Norul Safinaz Norul Rizal	IoT-Based Monitoring of Chili Plant Growth
Session 2				
15:00 - 15:10 WIB / UTC+7	CE/CS	295	Iska Hazma Mulyadi, Muhammad Ikhsan Nurasid, Billy Christiandinata, Annisa Istiqomah Arrahmah and Rissa Rahmania	Implementing Robotic Arms for Efficient and Reliable Water Quality Monitoring in Aquaculture
15:10 - 15:20 WIB / UTC+7	CE/CS	305	Red Alistaire Cruz, Ryan Kyle Enriquez and Glenn Magwili	Electrical Appliance Identification through Signal Processing of Electrical Wave Signal: A CNN-Based Approach
15:20 - 15:30 WIB / UTC+7	CE/CS	311	Laurentius Kuncoro Probo Saputra, Dechrit Maneetham and Tenzin Rabgyal	eDeSco-RC: Electric Detachable Scooter for Wheelchair using Remotly Control
15:30 - 15:40 WIB / UTC+7	CE/CS	358	Marchel Tombeng, Josua Limbu and Vito Korengkeng	Campus Parking System using YOLOv5 Object Detection Method
15:40 - 15:50 WIB / UTC+7	CE/CS	399	Lestari Ningratna Sari, Sri Huning Anwariningsih, Hardika Khusnuliawati and Dahlan Susilo	Optimizing Lighting Efficiency Through Automated Smart Lighting Systems: A Study on Network-Based Performance
15:50 - 16:00 WIB / UTC+7	CE/CS	402	Muhammad Yusuf Arifin, Khairunissa Chandra Kinanti, Alif Zhafar, Dina Kristiana Seftianingsih, Astri Chalorina Chalorina and Marwahyudi Marwahyudi	Automatic Ventilation Scheme to Increase the Coolness Smart Buildings
15:00 - 16:10	CE/CS	409	Yamin Thwe, Dechrit Maneetham and Padma Nyoman Crisnapati	Review of Applications in Wheelchair Control Using Emotiv

WIB / UTC+7				Insight and Emotiv Epoc Headsets
16:10 - 16:20 WIB / UTC+7	CE/CS	410	Muhammad Zakariyah, Umar Zaky, Muhammad Falah Akbar Al Faiz, Sulistyo Dwi Sancoko, Moh. Ali Romli and Muhammad Rafi Basyari	Upsampling RR-Interval, Is It Possible?

KEYNOTE SPEAKER AND INVITED SPEAKER PROFILE

KEYNOTE SPEAKER 1

Dr. Dechrit Maneetham is an Associate Professor and Head of the Mechatronics and Robotics Engineering Department at Rajamangala University of Technology Thanyaburi (RMUTT) in Thailand.Dr. Maneetham's research interests encompass biomedical applications, robotics and automation, and mechatronics. He has contributed to various international journals and conferences, with notable publications such as "Intelligent Surface Recognition for Autonomous Tractors Using Ensemble Learning with BNO055 IMU Sensor Data" in Agriculture (2024) and "Hedrocs: A prototype of helium drone controlling system using Esp32Cam" in AIP Conference Proceedings (2024). In addition to his research, Dr. Maneetham is actively involved in teaching courses related to industrial robotics, automation control systems, and robot and machine vision. He also serves as a reviewer for several international journals, including Disability and Rehabilitation Assistive Technology and Biosystems Engineering.

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KEYNOTE SPEAKER 2

Prof. Ir. Zainal Arifin Hasibuan, MLS., Ph.D., is a Professor of Computer Science currently serving as the Vice Rector for Information Systems and International Programs Universitas Komputer Indonesia. He has also served as the Chairman of the Association of Indonesian Higher Education in Computer Science (APTIKOM). His areas of expertise include e-learning, information retrieval, and information systems. As a prolific academic, Prof. Zainal has published over 273 scientific works since 1989, with more than 3,600 citations, demonstrating a significant impact on the scientific community. Prof. Zainal's contributions to education and research have been widely recognized, including his ranking at 70th place in the 'Indonesia Top 10,000 Scientists' for the Engineering & Technology category by the AD Scientific Index in 2023. His dedication to advancing the field of computer science has made him a central figure in Indonesia's academic community.

KEYNOTE SPEAKER 3

Prof. Dr. Kusrini, M.Kom is an academic and professional in the field of computer science, currently serving as the Director of the Graduate Program and the Head of the Master of Informatics Engineering at Universitas AMIKOM Yogyakarta. As a researcher, Prof. Kusrini has a keen interest in Artificial Intelligence, Computer Vision, Decision Support Systems, Data Mining, and Databases. She has published numerous internationally recognized scientific works, with a Scopus H-Index of 9 as of December 2023. Additionally, she is actively involved as an IT consultant for both governmental and private sectors and participates in organizations such as APTIKOM Central as Coordinator for Distance Learning and MOOCs, Secretary-General of CORIS, and Chair of IndoCEISS Collaboration.

PRESENTED PAPER ABSTRACTS

Paper ID #4

The antecedent of Impulsive Buying Decisions through Live Streaming Technology and Flash Sale in E-commerce

Al Naufal Navitama Putra, Dinda Qurnatuain, Garrybaldi Haidar Nugraha, Lily Leonita

ABSTRACT

The development of the internet has brought changes to human life. These changes influence consumers in impulsive buying decisions. With changes occurring that influence impulse buying decisions, E-Commerce responds to these changes by presenting new features. E-Commerce responds to changes in consumption decisions by presenting Live Streaming and Flash Sale features. This research aims to determine the influence of social interaction, visual appeal, price promotions, and time pressure on impulse buying decisions of Shopee users. Data was collected through an online survey or Google form involving 125 respondents from Shopee users. The data collection technique uses a questionnaire distributed online. The analysis method uses Partial Least Squares Structural Equation Modeling (PLS-SEM). The research results show that social interaction (β=0.195; p=0.048), visual appeal (β=0.254; p=0.026), price promotions (β=0.216; p=0.010), and time pressure (β=0.272; p=0.001) have a significant impact on impulse buying decisions among Shopee users. The implications of this research show that direct social interaction, attractive visual displays, effective price promotions, and time pressure can increase the impulse buying decisions of Shopee users. These findings contribute to understanding consumer behavior on the Shopee e-commerce platform and provide a basis for developing more effective marketing strategies. .

Keywords: live streaming, flash sale, impulse buying, ecommerce, pls-sem.

Paper ID #5

The Influence of Cultural Factors in Software Quality Assessment Models A Systematic Literature Review

Ni Nyoman Utami Januhari

ABSTRACT

This study focuses on the influence of cultural factors within software quality assessment models through a Systematic Literature Review (SLR) approach. The primary goal of this research is to identify and analyze the distribution of publications from 2019 to 2024 in the field of software quality research, particularly quality assessment models, and to assess the cultural factors frequently considered within these models. The methodology used includes defining research questions, inclusion and exclusion criteria, comprehensive literature search, critical assessment of included studies, data extraction and management, as well as analysis and interpretation of results. The findings indicate that cultural factors have a substantial impact on the development and assessment of software quality, highlighting the importance of integrating diverse behavioral norms and interaction styles in effective software development. Based on these findings, the recommendations proposed include the development of assessment methods that can more effectively accommodate cultural diversity, as well as the integration of cultural aspects into existing software quality models.

Keywords: Software quality models, Quality assessment models, Cultural factors in software quality, systematic literature review of software quality.

Paper ID #9

Fast-Moving Consumer Goods (FMCG) Sustainable Strategies: Minimizing Waste in Cereal Packaging Process

Fauzi Khair, Rahmat Sabani

ABSTRACT

Nowadays, competitive global manufacturing and service industries require companies to adopt sustainable business practices to provide high-quality products and services at an affordable price, particularly in the Fast-Moving Consumer Goods (FMCG) industry. The purpose of this study is to enhance the efficiency of the mono carton packaging process in an FMCG food cereal and snack company by identifying the largest waste through the application of the Value Stream Mapping (VSM) method. VSM is utilized to depict the flow of the packaging process from raw materials to finished products. The waste data in the Packaging Department between 2021 and 2022 was analyzed to identify the packaging flow, and current state mapping was utilized to discover the causes of waste. Hence, a proposed improvement design was obtained through Future State Mapping. The findings revealed that the most significant waste occurred in Non-Value-Added activities, specifically in the form of raw material inventory and work-in-progress material areas, causing a delay of seven days. The validated questionnaire results indicated that the most common forms of waste are Inventory (42.6%) and Excess Processing (31.9%). The Value-Added Ratio (VAR) before improvement had a percentage value of 99.94%, while the VAR value became 99.55% after the enhancement.

Keywords: future state mapping, sustainable strategies, value stream mapping
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Paper ID #10

Comparative Analysis of Robotic Arm Efficiency: Evaluating PID and Fuzzy-PID Control using Printed Mechanical Structure and ESP8266 Integration

Padma Nyoman Crisnapati, I Made Darma Susila, I Komang Agus Ady Aryanto, Jaturapith Krohkaew, Ricky Aurelius Nurtanto Diaz and I Made Suandana Astika Pande

ABSTRACT

This study investigates the comparative effectiveness of manual PID tuning versus Fuzzy-PID control in enhancing the performance of a robot arm with two degrees of freedom (2-DOF). The experimental approach involves conducting two scenarios: manual tuning of PID parameters in Scenario 1 and utilizing a fuzzy algorithm for PID parameter tuning in Scenario 2. The novelty of this research lies in the new 3D mechanical design of the 2-DOF robot arm and the utilization of the ESP8266 microcontroller for implementing Fuzzy-PID control. Performance evaluation is conducted using Root Mean Square Error (RMSE) and Root Mean Square Percentage Error (RMSPE) calculations. The results reveal that Fuzzy-PID control significantly reduces errors compared to manual PID tuning, with lower RMSE and RMSPE values indicating more precise and stable control. These findings underscore the potential of integrating fuzzy logic with PID control to enhance system adaptability and flexibility. Additionally, the ESP8266 is capable of handling the computations required for fuzzy-PID control while being cost-effective.

Keywords: Fuzzy-PID, PID Control, Mechanical Design, Arduino Uno, ESP8266.

Paper ID #12

Deep Learning in Financial Markets: A Systematic Literature Review of Methods and Future Direction for Price Prediction

I Made Adi Purwantara, Kusrini, Arief Setyanto, Ema Utami

ABSTRACT

This systematic literature review (SLR) investigates the application of deep learning methods in financial market price prediction, focusing on the most studied financial markets, commonly used deep learning techniques, input variables, performance evaluation metrics, and proposed future research directions. The review covers 56 peer-reviewed articles published between 2020 and 2024, selected from ACM Digital Library, IEEE Xplore, and ScienceDirect databases, examining the stock, cryptocurrency, commodity, and forex market price prediction. Long Short-Term Memory (LSTM) and Gated Recurrent Units (GRU) are identified as the most widely used methods due to their capability in handling long-term dependencies in time series data. The review highlights future directions in hyperparameter optimization, hybrid model integration, and the use of social network data. This study fills the gap in literature by analyzing recent advancements and their applicability across various financial markets.

Keywords: systematic literature review, deep learning, financial market, price prediction, stock, commodity, forex, cryptocurrency, LSTM, GRU, hyperparameter optimization, market sentiment, hybrid models.

Paper ID #13

Enhancing Financial Trading Strategies with Pattern Recognition: A Systematic Literature Review of Methods, Trend and Challenge

I Ketut Dedy Suryawan, Kusrini, Arief Setyanto, Ema Utami

ABSTRACT

This study investigates how pattern recognition in financial markets can enhance trading strategies through a systematic literature review (SLR). The research focuses on the most frequently studied financial markets, commonly used pattern recognition methods, identified chart patterns, the integration of trading strategies with pattern recognition, and future challenges. This study is significant because many approaches to pattern recognition analysis are subjective and lack scientific evidence, leading to varied interpretations and uncertainties. The methodology includes formulating research questions, defining inclusion and exclusion criteria, conducting a comprehensive literature search, critically assessing included studies, data extraction and management, and result analysis and interpretation. This SLR covers 46 articles from databases such as Scopus, ACM Digital Library, IEEE Xplore, and Science Direct, published between 2015 and 2024, relevant to the topic. The findings show a dominant use of deep learning technologies, such as Convolutional Neural Networks (CNN), segmentation techniques, and fuzzy logic in recognizing patterns, particularly classic patterns like head and shoulders, triangles, double tops, and others, which contribute to enhancing trading strategies.

Keywords: pattern recognition, financial chart pattern, Trading Strategies, Convolutional Neural Networks (CNN), Segmentation.

Paper ID #17

Investigating the Effectiveness of Feature Extraction Techniques in Predicting Emotions from Indonesian Tweets Using Machine Learning

Jeremy Christopher N. S., Julius Lie, Ghinaa Zain Nabiilah, Jurike V. Moniaga

ABSTRACT

The rapid growth of social media platforms, particularly Twitter, resulted in an unprecedented volume of user-generated content, making it essential to understand the sentiments and emotions expressed in these texts. This study focuses on enhancing sentiment analysis techniques for Indonesian tweets, an area of growing importance given the increasing number of Indonesian Twitter users. The primary objective is to improve the accuracy of sentiment analysis by comparing the performance of two machine learning algorithms: Support Vector Machine (SVM) and Naïve Bayes, using two text representation techniques: TF-IDF and Count Vectorization. A dataset of 4,403 Indonesian tweets, labeled with five different emotion classes—love, anger, sadness, happiness, and fear that underwent preprocessing to ensure uniformity. The analysis revealed that the SVM achieved an accuracy of 65% using TF-IDF, outperforming Naïve Bayes' 60% accuracy. Conversely, with Count Vectorization, Naïve Bayes outperformed SVM, achieving an accuracy of 66% compared to SVM's 61%. The results indicate that while SVM excels with TF-IDF, Naïve Bayes performs better with Count Vectorization. This research highlights the necessity of tailoring sentiment analysis approaches to the specific characteristics of the dataset and contributes to the advancement of sentiment analysis methodologies for Indonesian tweets and other social media data.

Keywords: Sentiment Analysis, Support Vector Machine, Naïve Bayes, Machine Learning, Feature Extraction.

Paper ID #19

Detecting Emotions Through Text Using Long Short-Term Memory (LSTM)

Christhoforus Delon Yudistira, William Viriya Halim, Jurike V Moniaga and Ghinaa Zain Nabiilah

ABSTRACT

As time passed, humans tend to speak through texts rather than talking face to face due to its convenience. Although this is not a bad thing, this also causes some problems. An example of the problem is misunderstanding. The recipients can't see the texter's expression, therefore they might not understand fully the context behind the texts. In this study, we aim to fix that problem by building a text to emotion classification model with the available resources. The model we used is a deep learning LSTM model with a total of 7 classifying emotions consists of joy, fear, anger, sadness, disgust, shame, guilt. The model used provided us an accuracy of 71.22% in classifying the different emotions. The accuracy of this model is classified good because the majority of the text that goes through the model can be predicted well. For our future research, we hope to improve the model we use by combining existing model with other models to increase the training value of our model so that we can reduce the loss value and increase the accuracy value of our model with hope it reaching above 80-90%.

Keywords: LSTM, LSTM Model, AI, Computer Science, Emotion Detection, Text Detection, BINUS, Deep Learning, Classification.

Paper ID #20

E-Tax Systems and Tax Knowledge Impact on Small, and Medium Enterprises Taxpayer Compliance In Indonesia

Angela Fransiska, Siauw Michelle Alexandra, Ilham Condro Prabowo

ABSTRACT

The e-tax system was developed to increase taxpayer compliance, and knowledge of tax regulations strengthens this. This research aims to determine the relationship between e-tax systems adoption and tax knowledge on taxpayer compliance. This quantitative research uses primary data obtained through questionnaires to 100 respondents. The sampling method uses purposive sampling with the following criteria: Small and Medium Enterprises (SME) Taxpayers domiciled in Greater Jakarta who use a final Income tax rate of 0.5% and use e-form to report annual tax return (SPT). Analysis of this research data uses the PLS-SEM method. The research results show that attitude toward e-tax significantly influences adoption of e-tax, while attitude toward e-tax, Adoption of e-tax, and tax knowledge significantly influence taxpayer compliance. The findings show that positive attitudes toward e-tax systems and better tax knowledge can improve taxpayer compliance among SMEs. This suggests that Directorate of General Taxes should focus on making e-tax platforms easier to use and highlighting their benefits to encourage more businesses to adopt them and comply with tax regulations.

Keywords: E-Tax, E-Form, Taxpayer Compliance, Small and Medium Enterprises .

Paper ID #22

Thread User Sentiment Analysis Based on Text using LGBM, SVM, and Logistic Regression Algorithm

Nicholas Vincent Chao, Rafael Jo, Ghinaa Zain Nabiilah, Jurike V Moniaga

ABSTRACT

Social media is growing rapidly as a medium for online communication. Through social media, users can share opinions, stories or other things. The messages shared tend to have various meanings, such as positive, negative or neutral. The text shared sometimes has a negative meaning that can disturb other users. So based on this, this study will conduct a Text-Based Thread User Sentiment Analysis using Light Gradient Boosting Machine (LGBM), Support Vector Machine (SVM), and Logistic Regression. Our comparative investigation using a large dataset of 37,000 annotated text samples from the Thread application shows that SVM outperforms other methods with an accuracy of 89.24%. The accuracy rates for LGBM and logistic regression are 83.89% and 86.91%, respectively. One of the evaluation metrics is precision, which consistently shows superior SVM performance. These findings indicate that Support Vector Machine (SVM) is the most efficient algorithm for sentiment analysis in textual data, indicating its reliability and suitability.

Keywords: sentiment analysis, thread, LGBM, SVM, Logistic Regression.

Paper ID #24

Establishing a Standard Operating Procedure (SOP) for Palm Oil Plantation FFB Image Capture: Utilizing YOLOv8 for Counting and Ripeness Classification

Muhammad Rizky Hidayat, Pavel Azarya Sulistyo, Hansen Oktario, Alexander A S Gunawan, Prasetyo Mimboro,

ABSTRACT

Almost all oil palm harvest management is still done manually today, especially in the monitoring stage where oil palm farmers assess the ripeness of oil palm fresh fruit bunches (FFB) in the plantation. The monitoring stage, which is a crucial step, requires re-checking the ripeness of fresh fruit bunches (FFB) at the collection point (TPH) to ensure that the bunches brought to the factory are ripe. This research focuses on creating an SOP to be implemented in the plantation so that the AI in the automated system, also created in this research, can be used to optimally detect, calculate, and classify the ripeness of the FFB. By using the YOLO8 algorithm based on deep learning and CNN, the dataset used consists of 4257 images taken directly from PTPN IV plantations. The results of this study showed good model performance, with an accuracy of 96.56%. The application of this model is expected to increase the efficiency and accuracy of FFB quality monitoring, reduce losses, and support better data-based decision-making.

Keywords: Palm Oil, Ripeness Classification, Deep Learning, Operational Efficiency, Harvest Management.

Paper ID #25

Comparative Analysis of Fungal Infections Classification in Apple Leaves Using CNN and CNN with GLCM Features

Hendrik Nicolas Carlo; Kelvin Andreas; Meiliana; Alfi Yusrotis Zakiyyah

ABSTRACT

Around 85% of the world's leading plant diseases are caused by fungal organism. These fungi possess a massive threat to food security and good harvest. Hence, Accurate and timely fungal infections classification is crucial. This paper explores the potential of deep learning architectures such as Convolutional Neural Networks (CNNs) for fungal infection classification using apple leaf images. We investigate the impact of incorporating Gray Level Co-occurrence Matrix (GLCM) features, which capture image texture, into the CNN architecture. By comparing the performance of the pure CNN and the CNN incorporating GLCM features. Based on the results, we gained the result of 82% accuracy and 81% f1-score on pure CNN, meanwhile 49% accuracy and 47% f1-score on CNN supporting GLCM.

Keywords: fungal infection classification, apple leaf, deep learning, CNN, GLCM.

Paper ID #26

Predicting life expectancy age using Japan's different prefectures population as a basis with the help of machine learning algorithm

Farrel Alimin and Rifky Iskandar

ABSTRACT

This research paper focuses on predicting life expectancy using machine learning algorithms and Japanese citizen's leading average life expectancy age as the basis/dataset for the training model. With the help of a machine learning algorithm, we aim to accurately predict life expectancy based on different factors that supposedly affect life expectancy as per Japan's high life expectancy. Additionally, This research seeks to identify the most significant factors that are supposedly positive or negative to life expectancy. We seek to give a new perspective in prediction models for life expectancy with Japan's long history of healthcare. Moreover, the predictive models developed in this study will offer valuable insights for policymakers to tailor targeted interventions aimed at improving public health outcomes and promoting longevity across the world.

Keywords: Predicting life, machine learning.

Paper ID #29

Performance Evaluation of Intrusion Detection System with SVM

Ricky Aurelius Nurtanto Diaz, I Ketut Gede Darma Putra, Made Sudarma, I Made Sukarsa

ABSTRACT

Various machine learning techniques have been proposed to improve the effectiveness of Intrusion Detection Systems (IDS), where IDS is one of the important parts of the network that functions to maintain network security. With its various capabilities and reputation, Support Vector Machine (SVM) is often applied in various classification cases. However, it has constraints with accuracy and computing time when it comes to data that has large dimensions. Utilizing metaheuristic techniques is one possibility that researchers can use to solve this problem. To overcome this, in this study, we will evaluate the performance of SVM for the IDS case by utilizing the metaheuristic Grey Wolf Optimization (GWO) algorithm. From the experiments with three different iteration models, the best results of the combination of SVM and GWO were found in a model with 10 GWO iterations and 10 populations with an accuracy of 97.47% using 15 features out of 48 original features of the UKM-IDS20 dataset. .

Keywords: svm, gwo, ids, feature, selection.

Paper ID #30

Performance Comparison of the Invasive Weed Optimization K-Means Algorithm with Particle Swarm Optimization K-Means for Banking Data

Ni Luh Gede Pivin Suwirmayanti,I Ketut Gede Darma Putra, Made Sudarma, I Made Sukarsa, Emy Setyaningsih

ABSTRACT

Banking produces extensive and diverse data, so a clustering process is needed to understand customer behavior patterns and transactions more effectively. This clustering has been widely utilized with the K-Means algorithm due to its simplicity and efficiency. However, this algorithm is limited in determining the optimal cluster center, affecting the accuracy of the clustering results. This study proposes applying two metaheuristic algorithms, Invasive Weed Optimization (IWO) and Particle Swarm Optimization (PSO), as additional solutions combined with K-Means. These two algorithms were chosen because of their ability to find global solutions and convergence speed to handle large and complex banking data. The results show the superiority of IWOKM compared to PSOKM in terms of SSE and DBI. From the SSE value, IWOKM produces a lower value (3029.77), which indicates that this method is better at minimizing clustering errors and producing more accurate clustering than PSOKM (80007.09). From the DBI value, IWOKM also produces a better value (1.6684) than PSOKM (1.6782), which shows that the clusters produced by IWOKM are more compact and more separated. However, in terms of computation time, PSOKM is more efficient, with a faster average computation time. Although IWOKM produces better clustering quality, PSOKM offers advantages in terms of processing speed. This finding confirms that the selection of the IWO algorithm is more appropriate for use on datasets with characteristics such as the German Credit Dataset.

Keywords: clustering, k-means, invasice weed optimization, particle swarm optimization, banking data.

Paper ID #33

Plagiarism detection using cosine-similarity method

Jonathan Rio Wicaksono, Lili Ayu Wulandhari

ABSTRACT

Plagiarism is taking the other people's work without mentioning where the source is. The problem when plagiarism exists is misusing other people's works. This problem must be solved quickly because of how quick the development of information and technology is. The main objective of this research is to develop a method to calculate similarity between texts using cosine similarity. This research will show if the method is effective to detect plagiarism or not. The Cosine Similarity method is one of the most used methods to detect plagiarism between texts. The text will be processed to text processing method and vector representation before calculating with cosine similarity method. Cosine Similarity calculates the text similarity in vector form and the outcome will be in the range 0 to 1. There are 20 pairs of short text documents and long text documents to test in txt format. The result from both tests is 100% accuracy for short text documents and 25% accuracy for long text documents with 0.5 as the threshold. The research concluded that the method is successful for short text documents and not successful for long text documents. It shows that the method is effective for short text documents.

Keywords: Plagiarism, Plagiarism Detection, TF-IDF, Cosine Similarity.

Paper ID #35

Integrated Lean Ecodesign And Green Performance: A Comprehensive Model For Sustainable Logistics

Christopher Joshua Leksana, Novyandri Taufik Bahtera, Stefanus Rumangkit and Ivan Sangkereng

ABSTRACT

The logistics sector plays a crucial role in sustainable development due to its pivotal position in the national economy and its influence on other sectors. Nonetheless, environmental issues stemming from logistics operations present significant challenges. This industry involves multiple service aspects like packaging, storage, and transportation, all of which have the potential to cause environmental harm. For example, excessive packaging contributes to waste pollution, and transportation practices lacking environmental considerations can increase emissions of greenhouse gases and noise pollution. Quantitative methods were utilized, employing simple random sampling, which yielded 168 valid responses through an online survey conducted in Indonesia. Data analysis consisted of descriptive statistics and Structural Equation Modeling (SEM) using Partial Least Squares (PLS) via SmartPLS. The results indicate that only Ecodesign, Green Innovation, and Green Logistics have a significant impact on Green Performance within this research context. This study aims to offer deeper insights into how these practices can improve environmental performance in the logistics industry, with the expectation that Green Innovation will play a pivotal role in achieving these objectives.

Keywords: Ecodesign Logistic, Green Warehousing, Waste Management, Green Performance, Green Inovation .

Paper ID #36

Optimizing Automotive Cybersecurity with Cost-Sensitive Decision Forest Algorithm in IoV

Salwa Umar Qureshi, Alireza Souri and Nihat İnanç

ABSTRACT

In the quickly changing world of connected cars, having strong cybersecurity is essential. To protect vehicular networks from cyber threats, this study provides an Embedded Intrusion Detection System (IDS) that has been optimized using the Cost-Sensitive Decision Forest (CSForest) optimization algorithm. To improve data usefulness and model performance, a thorough preprocessing and feature engineering process was carried out using a real vehicular GPS tracking process from ToN-IoT dataset. After evaluating several machine learning algorithms, CSForest received the best results, scoring 100% accuracy along with flawless precision, recall, and F-measure scores. Our results highlight how well the CSForest-based IDS can detect and stop possible cyberattacks in connected cars, which will improve automotive cybersecurity and create a safer driving environment for vehicular communication systems. The study also emphasizes how crucial it is to keep updating IDS models to handle the ever-changing nature of cyberattacks and maintain the dependability and resilience of vehicular communication systems in the future. The discovery has practical consequences as it can improve connected and autonomous car cybersecurity infrastructure substantially, lowering vulnerabilities and guaranteeing a safer transportation ecosystem.

Keywords: Cybersecurity, Internet of Vehicles, Machine Learning, Intrusion Detection, CSForest Algorithm.

Paper ID #37

Enhancing Solar Energy Production Forecasting with Ensemble-based Learning Techniques

Hany Abdelsalam, Alireza Souri and Nihat Inanç

ABSTRACT

The global trend in renewable energy solutions has emphasized the urgent need for accurate forecasting of solar energy production. This study examines the potential of ensemble-based learning techniques in predicting solar energy production by leveraging historical data collected from 11 solar photovoltaic installations in Calgary, Canada, spanning from September 2015 to March 2023. The dataset was carefully preprocessed to handle missing values, duplicates, and to extract meaningful features that align with the nature of time series data. A range of ML models were implemented and assessed by several forecasting evaluation metrics, including Mean Absolute Error (MAE), Mean Squared Error (MSE), and R-squared (R2). The experimental results demonstrate the superior performance of ensemble methods, particularly XGBoost and Light GBM, in solar energy forecasting. XGBoost achieved the best performance, with an MAE of 25.36, an MSE of 3599.66, and R2 of 0.957, outperforming models such as Random Forest and Neural Networks. The practical implications of these findings suggest that accurate solar energy forecasting can significantly enhance operational planning and optimize energy management in solar power plants, contributing to more reliable and efficient renewable energy systems.

Keywords: Solar energy forecasting, machine learning, ensemble methods, time series analysis, XGBoost, renewable energy.

Paper ID #41

Analysis of the Influence of Students' Learning Interest on the Implementation of Augmented Reality in the Education System in Indonesia: A Case Study of High Schools in Tangerang City, Indonesia

Ricardo Laurent, Maryani

ABSTRACT

This study aims to measure the acceptance of AR technology among high school students in Tangerang city by identifying variables that affect the acceptance of AR technology in education. This study uses a quantitative questionnaire method by distributing data to 128 high school students in Tangerang City. The data collected was analyzed using Smart PLS 4. The results of this study reveal that perceived interactivity (PI) and social influence (SI) positively affect perceived ease of use (PEOU) and perceived usefulness (PU). While facilitating conditions (FC) positively affect PEOU, but do not affect PU. Then, attitude toward use (ATU) shows a positive impact on behavioral intention to use (BI). Meanwhile, PEOU and PU have a positive impact on ATU and PEOU can also significantly affect PU. This research contributes to the understanding of AR technology acceptance by identifying influential variables and providing insight into how AR technology can contribute to the field of education. As a practical implication, high schools can consider implementing AR technology in learning. The subject matter can also be adapted to the utilization of AR technology to create interactive and effective learning.

Keywords: Augmented Reality, User Acceptance, Education, Quantitative Analysis.

Paper ID #52

Adoption Of Blockchain Technology To Prevent Misuse Of School Operational Assistance Funds (BOS) in Indonesia

Inayatulloh Inayatulloh, Loso Judijanto, Denok Sunarsi, Rofiq Noorman Haryadi, Sugeng Riyanto and Prasetya Cahya Saputra

ABSTRACT

School Operational Assistance (BOS) is an Indonesian government program that provides financial assistance to schools throughout Indonesia to help organize education in schools. BOS funds are given to educational units, both public and private, based on the number of students they have. The purpose of school operational assistance is to free education costs for all students in public and private schools and to ease the burden of school operational costs for private schools. Problems arise when BOS funds are not used in accordance with the regulations set by the government. There are several types of BOS fund misuse, such as double counting, fictitious financing, project markups, embezzlement, and misappropriation of funds. Thus, the purpose of this research is to build a monitoring system for the use of BOS funds based on blockchain technology to increase transparency in the use of BOS funds. The concept of peer-to-peer validation on the blockchain network that will be applied to the BOS fund usage monitoring system is a concept that ensures that every stakeholder knows and validates all transactions. The research method uses a qualitative approach through a literature review to study the phenomena and problems in the distribution of BOS funds. A literature review is also used to study blockchain technology as the main concept for creating the proposed model. The research output is a model, activity diagram, and simulation using the Hyperledger framework.

Keywords: Operational Assistance Funds, blockchain technology, transparency fund distribution.

Paper ID #55

Blockchain Technology Supports Employee Career Management to Increase Transparency of Employee Career Achievements

Inayatulloh Inayatulloh, Yasri Yasri, Ahmad Fathurrozi, Muhammad Yasir, Fried Sinlae, Tyastuti Sri Lestari, Wowon Priatna, Indra Kusumadi Hartono and Achmad Noe'Man

ABSTRACT

Career planning for employees is an important part for employees to increase motivation and work performance. On the other hand, career management for companies plays an important role in meeting employee needs in the future. The problem is that employees cannot get real-time and valid information about their career progress based on objective company assessments. Many old employees are not promoted to higher positions without an accurate explanation from the company. Thus, a system is needed that can help employees monitor their career progress. So the aim of this research is to build an employee career management model using blockchain technology to increase the transparency of employee career paths in the company. The research uses a qualitative approach through a literature review to obtain information about employee management phenomena and problems. The literature review is also used to study blockchain technology as an alternative solution to career management problems. The research output is a blockchain technology adoption model for corporate career management and simulation with the Hyperledger framework.

Keywords: carrier management, blockchain, transparency, Hyperledger.

Paper ID #65

AI-Driven Revolution: Effectiveness of Product Ads on Social Media Using Midjourney

Christina Lorenza, Eriana Astuty

ABSTRACT

The rapid development of artificial intelligence (AI) is inevitable and significantly impacts our lives. Although AI has many positive benefits, some research results show that it cannot fully replicate the complexity and subjectivity of human intelligence and emotions. The research objective is to assess AI's effectiveness in visualizing product advertisements using Midjourney on social media. The research used a quantitative approach with an online questionnaire as an instrument to collect data from the millennial generation and Gen Z in Bandung City from March to June 2024. The results of the descriptive analysis revealed that Gen Z is quite familiar with AI-based advertising and has good knowledge about artificial intelligence and its use. Consequently, Gen Z can easily understand AI-based product advertising messages, leading to increased brand awareness and recall. Overall, most Gen Z responded positively to the Midjourney application as a valuable tool for designers in developing advertising ideas on social media and expressed interest in viewing other product advertising visualizations using AI technology.

Keywords: Artificial Intelligence (AI), Social Media, Midjourney, Product Visualization, Advertisement, Millennials, Gen Z.

Paper ID #73

Comparing Machine Learning Algorithms with Ensemble Model using Random Oversampling for Predicting Student's Dropouts

Ivan Setiawan; Yithro Paulus Tjendra; Alfi Yusrotis Zakiyyah; Meiliana

ABSTRACT

Studying at the university can be very difficult for some students, and many struggle to keep up with their academics, resorting to academics dissatisfaction and even dropping out. This study examines the impact of various machine learning models in classifying student dropout likelihood, with a focus on mitigating class imbalance using Random Oversampling (ROS). We compare machine learning algorithms such as Logistic Regression (LR), K-Nearest Neighbor (KNN), Naïve Bayes (NB), Random Forest (RF), Extreme Gradient Boosting (XGBoost), and Soft Voting. Our results show that the Soft Voting model achieves the best performance, with an F1 score of 0.93, outperforming other models in predicting dropouts. ROS is found to improve model performance, yet it contributes to slight variability, indicating potential overfitting. These findings support educational institutions in designing targeted interventions for at-risk students, helping to prevent dropout through optimized prediction methods.

Keywords: Machine learning, soft voting, student dropout prediction, classification algorithms, performance comparison, hyperparameter tuning, random oversampling.

Paper ID #75

Recognitions of Bahasa Isyarat Indonesia (BISINDO) Alphabets using SVM and Mediapipe

Robert Wiliam, Charlie Lufian, Meiliana, Alfi Yusrotis Zakiyyah

ABSTRACT

Bahasa Isyarat Indonesia (BISINDO), Indonesia's national sign language, serves as a primary mode of communication for a large portion of the population. This study explores a novel approach to BISINDO sign language recognition by leveraging Support Vector Machine (SVM) in conjunction with MediaPipe, a framework for real-time machine learning. MediaPipe has demonstrated strong performance on other datasets, and in this application, it extracts features from hand gesture images that are then classified by the SVM algorithm. Our model achieved an impressive average accuracy score of 98.82%, with an average precision of 97.34%, recall of 99.00%, and F1-score of 97.76%. In comparison to previous studies using HMM (which achieved an accuracy of 76.25%) and CNN (with an accuracy of 75.83%), our model demonstrates a significant improvement in recognizing BISINDO. Our model offers several distinct advantages. MediaPipe's robust feature extraction capabilities are particularly well-suited to capturing complex hand movements, allowing SVM to focus on high-quality input features that enhance classification accuracy. Unlike deep learning models such as CNN, which require substantial computational resources, our model remains lightweight and efficient, making it ideal for deployment on mobile and low-resource devices. This efficiency ensures that BISINDO recognition can be achieved in real-time and in practical applications, enabling a more accessible and reliable communication tool for the BISINDO-used community.

Keywords: Bahasa Isyarat Indonesia, BISINDO, Support Vector Machine, MediaPipe, Hand Sign Recognition .

Paper ID #77

Leveraging Deep Learning for Early Detection of Stomach Cancer: A Convolutional Neural Network Approach

Arya Maulana Bratajaya A.,Defara Putra Nurimaba, Ghinaa Zain Nabiilah, Jurike V. Moniaga

ABSTRACT

Early detection is crucial in improving patient, outcomes and survival rates for stomach cancer. This research, introduces a deep learning system employing Convolutional, Neural Networks (CNN) to aid in the early detection of stomach, cancer. Our methodology involves training CNN models on medical images, including endoscopy images and histopathological slides, to identify early-stage precursors of the disease. We conducted experiments using medical image data from a clinical study, which included diagnoses for various stages of stomach cancer. The results demonstrate that our CNN-based framework achieves high accuracy in recognizing early-stage stomach cancer, suggesting its potential as a valuable tool for early diagnosis in clinical settings. This framework could significantly enhance the ability of healthcare providers to diagnose stomach cancer at its earliest stages, ultimately improving treatment outcomes and patient survival rates. .

Keywords: Stomach cancer; Deep learning; Endoscopic images; Convolutional Neural Network.

Paper ID #79

Analysis of the Influence Wakuliner.com Website Quality on Customer Trust, Experience, and Loyalty Using WebQual 4.0 Method

Faris Ichsan Agastya, Maryani, Hendry Hartono

ABSTRACT

Wakuliner.com uses its website as a key platform for competitive advantage. Ensuring website quality is essential for building customer trust, enhancing experience, and securing loyalty. This study evaluates Wakuliner.com's website quality, focusing on Customer Loyalty through Customer Trust and Experience, using the WebQual 4.0 framework through four main indicators: Usability Quality, Information Quality, Service Interaction Quality, and Interface Quality. The research data from 201 participants were collected via Google Forms questionnaire and analyzed quantitatively with SmartPLS 4. The results show that most of the hypotheses were confirmed, three were denied, including information quality on customer trust, usability and interface quality on customer experience. Based on the suggested solution, improvements are required to increase customer loyalty. These improvements include ensuring information is true and trustworthy, improving usability for better comprehension, and revamping the interface for better aesthetics. By evaluating several aspects of the Wakuliner.com website, this study identifies areas that require improvement to boost overall efficiency and strengthen customer loyalty by emphasizing the value of customer experience and trust. .

Keywords: Website Quality, Webqual 4.0, Trust, Experience, Loyalty .

Paper ID #83

Detecting Hate Speech on Indonesian Twitter Using Logistic Regression

Fabio Valentino William, Jensen Ramadhaniel Putra Esene, Ghinaa Zain Nabiilah, Jurike .V. Moniaga

ABSTRACT

Hate speech on social media has become a significant issue, particularly due to the diverse nature of these platforms where people from around the world interact. Social media, intended as a place for communication and connection, has unfortunately also become a place for expressing hate towards individuals or groups. Numerous studies have been conducted to understand and address this problem. These hateful messages can target people based on their race, religion, ethnicity, sexual orientation, disability, or any other factor that can be used to divide. This particular research focuses on detecting hate speech on Indonesian Twitter. The methodology involves several steps: Data collection, data preparation, data analysis, validation and testing, evaluation. By implementing Natural Language Processing techniques for Logistic Regression, this study aims to contribute valuable insights for future research on hate speech detection especially within Indonesian social media. The expected outcome is to enhance the understanding and detection of hate speech, thereby helping to create a safer and more inclusive online environment.

Keywords: Detecting Hate Speech, Twitter, Logistic Regression, Social Media, Indonesian Language.

Paper ID #84

Enhancing Business Agility: The Effects of IT Capability and Digital Transformation

Sandy Kosasi, Yudhi Fajar saputra, Po Abas Sunarya, Susanti Margaretha Kuway, I Dewa Ayu Eka Yuliani, Utin Kasma, Budi Susilo

ABSTRACT

Digital technology with IT capability support has been a significant driver of digital Transformation, leading to changes in business operating systems and customer, supplier, and stakeholder interactions. Nevertheless, there needs to be more previous research literature that discusses the impact of IT capabilities on enhancing family SME business agility through digital Transformation. The research aims to explore and confirm the extent to which digital Transformation has an effect and a positive influence on improving its agility—convergence triangulation research method with explanatory design through follow-up explanation. The research population comprises a family of small and medium-sized enterprises that have been managing the business for over five years. The questionnaires were distributed to 185 respondents online using random sampling techniques, and only 163 responded, with a response rate of 88.11%. Data processing with Likert scale and analytical tools using SEM-PLS. The research showed that small and medium-sized enterprises are heavily influenced by IT flexibility and IT integration, mediated by digital Transformation to improve operational efficiency, customer service, and opportunities to reach broader markets. Building IT integration requires the involvement of digital transformation processes in increasing business agility. While IT flexibility does not need to be supported by the digital Transformation process.

Keywords: IT Capability, IT Flexibility, IT Integration, Digital Transformation, Business Agility.

Paper ID #85

Detecting Account Takeover (ATO) in Fintech Companies Using Machine Learning

Richard Santoso, Alexander A S Gunawan

ABSTRACT

Financial technology usually called fintech, has changed the landscape of financial services by introducing technological innovations to simplify, digitize, and disrupt traditional services. However, because of these technological developments, account takeover (ATO) attacks are one of the new challenges that have appeared, threatening user security and platform reputation. Account Takeover (ATO) attacks cause a significant risk for many sectors, including financial services, online retail, and social media. However, most current efforts focus more on Sybil detection and fraud detection rather than ATO. ATO attacks cause significant harm to users and fintech companies, including identity loss and loss of customer trust. This study compares the effectiveness of Random Forest, Logistic Regression, XGBoost, and Light GBM in finding new fraud trends. This is achieved by applying Machine Learning (ML) methods to improve credit card fraud detection. This dataset contains 6,362,620 unbalanced data that are balanced using the undersampling technique. Among the four algorithms compared, the LightGBM algorithm achieves the best result with an accuracy of 0.99. These results enable fairly accurate fraud detection. This research contributes to fintech companies by advancing the understanding of ML techniques in fraud detection, providing a comparative analysis of different algorithms, and providing more effective strategies for solving credit card fraud problems.

Keywords: Fintech, Account Take Over, Fraud Detection, Machine Learning, Transactions.

Paper ID #87

Exploring the Effectiveness of Adding Sentiment Analysis and Trends into Random Forest Machine Learning Algorithm to Predict Bitcoin Price Action

Vincent Oei, Pieter Effendy, Islam Nur Alam, Lili Ayu Wulandhari

ABSTRACT

Cryptocurrencies have recently become popular among many people, young and old, with various backgrounds. The popularity of cryptocurrency shines due to several things, one of which is Bitcoin, the largest cryptocurrency ever to exist. However, even though Bitcoin is well-known and considered as the largest cryptocurrency, Bitcoin still experienced major price fluctuations over the years, seen in daily trades and yearly valuations. It is because in this digital era, the whole market can be said to be vulnerable because news and social media posts can easily be accessed on the internet. Therefore, it can create sentiments and trends across society. Due to the possibility that sentiment and trends can influence the volatility movements of cryptocurrencies such as Bitcoin, this research wants to see whether the use f sentiment analysis and trends in one of Machine Learning algorithms, namely Random Forest, can predict the Bitcoin price action well.

Keywords: cryptocurrency, Bitcoin, Machine Learning, Random Forest, sentiment analysis, trends.

Paper ID #89

Gold Price Prediction using Machine Learning and Deep Learning

Steven Liu Sentiko, Alfi Yusrotis Zakiyyah, Meiliana

ABSTRACT

Volatility of gold prices has direct implications to the investors in Indonesia since it becomes very hard to identify the right time to invest in gold or when to sell the precious metal. Also, organizations that rely on gold experience difficulty in both cost and time control in relation to production since the price is constantly fluctuating. As a result, this paper seeks to respond to the above challenges by estimating and comparing models for gold price prediction in Indonesia. In contrast to those researches, which investigate only selected countries or do not evaluate the performance of the developed models, this paper compares LSTM and GRU deep learning models with a linear regression machine learning model. We assess their performance by the model fitness measures, which correspond to the R^2 and charts The obtained results: LSTM 93%, GRU 96%, and the linear regression model 86% and got 0.3231 MAE, 0.1389 MSE, 0.3727 RMSE for Linear Regression, got 0.1500 MAE, 0.0397 MSE, 0.1992 RMSE for GRU . According to the evaluation results, we can conclude that the predicted model with the highest accuracy of predicting the gold price in Indonesia is the GRU model.

Keywords: LSTM,Linear Regression, GRU, Gold Prediction.

Paper ID #92

Stunting Prediction in Children Using Random Forest Algorithm

Ahmad Fauzan Kanz

ABSTRACT

Stunted child growth and development caused by chronic malnutrition has remained a significant global public health problem worldwide, especially in low- and middle-income countries. Thus, it is essential to employ effective predictive models that can identify those at risk so as to implement appropriate interventions. In this research, a predictive model for childhood stunting based on artificial intelligence (AI) methods will be introduced. The machine learning algorithms and statistical techniques are employed in the model which integrates several socio-economic, demographic, dietary and health related factors to predict stunting among children under five years of age. This includes training the model using survey data that is nationally representative as well as longitudinal studies to ensure its reliability and applicability across populations with different characteristics. Some of the metrics used to assess the predictive performance include accuracy, sensitivity, specificity and area under receiver operating characteristic curve (AUC-ROC). Many interpretability techniques have been utilized to highlight the primary factors associated with an increased risk of stunting thereby becoming a valuable tool for policy makers and health care providers in planning focused interventions and resource allocation effectively. Utilizing AI, this predictive model presents a proactive strategy to address childhood stunting, ultimately enhancing child health and well-being globally.

Keywords: artificial intelligence, stunting.

Paper ID #98

Towards the Fun Therapy on People with Mental Disorder – Analysis on Serious Game for Mental Therapy

Galih Dea Pratama, Haryono Soeparno, Yulyani Arifin and Ford Lumban Gaol

ABSTRACT

Mental health is one of the states of well-being which enables people to cope with various things in everyday life. Despite that, mental health is often overlooked, driving the emergence of numerous mental disorders on people. Along the presence of technological advancements, there is serious game which is utilized to entertain and achieve non-game goals related to real-life issues. Due to that, serious game can be leveraged as a media put into health sectors, particularly in presenting fun therapy to people diagnosed with mental disorders. This research presents systematic literature review on publications discussing the utilization of serious game in providing fun therapy for people with mental disorders, focusing on matters like the mental disorders emphasized within, the game elements presented in each publication, and ways to evaluate the serious game. The result indicates overall well-received responses regarding the usage of serious game in serving the purpose, albeit with different ways on evaluation process based on the mental disorders each publication addressed for.

Keywords: mental disorder, fun therapy, video game, serious game, systematic literature review.

Paper ID #101

Enhancing Auditing Quality through Big Data Analytics: A Study Leveraging the Technology Acceptance Model in Computing and Processing

Nicholas Pradana Harijanto, Veronica Veronica and Ignatius Edward Riantono

ABSTRACT

In the rapidly evolving landscape of global technology, information technology (IT) and electronic resources have become crucial assets for businesses. This study investigates the utilization and impact of Big Data technology in the audit processes of public accounting firms in Indonesia, examining how these technologies enhance audit quality, efficiency, and risk assessment. Utilizing the Technology Acceptance Model (TAM), the research explores auditors' perceptions of the usefulness and ease of use of Big Data analytics and their acceptance and application within the audit domain. The findings indicate a positive relationship between perceived contribution, perceived ease of use, and perceived usefulness of Big Data Analytics. Moreover, the actual use of Big Data Analytics significantly improves audit quality by allowing for comprehensive data analysis and more accurate identification of fraud and errors. This research underscores the critical role of Big Data Analytics in Audit Quality, offering a baseline for future studies on the integration of advanced technologies in auditing.

Keywords: Big Data, Big Data Analytics, Audit, Audit Quality, Technology Acceptance Model.

Paper ID #105

Implementation of OpenCV and CNN-Keras in Detecting Plastic Waste

Gabio Mega Handoko, Eileen Gunawidjaja, Hanis Amalia Saputri, Azani Cempaka Sari, Almuzhidul Mujhid

ABSTRACT

Plastic waste has become a worldwide concern, as it can create a bad environment. To reduce it, better waste management is needed. The simplest waste management is waste sorting. However, the lack of understanding of trash types makes waste management awful. Thus, instead of doing waste sorting manually, it is better to have technology to help with waste sorting. Based on that, this research aims to implement computer vision and CNN to optimize waste sorting of plastic waste from other kinds of waste. The result of this research shows the model is quite good for waste sorting and has an accuracy of 75.08% for the testing dataset. However, in the implementation of the CNN model, it is more considered to be used considering the computational and deployment costs in the wider society.

Keywords: plastic waste management, CNN, computer vision, classification. .

Paper ID #107

Palm Fruit Ripeness Detection and Counting Using YOLOv8 Algorithm in PTPN IV Medan North Sumatera, Indonesia

Rael Russel Hutapea, Samdo Jumar Purba, William Ferdinandz Tandion, Erna Fransisca Angela Sihotang, Edy Irwansyah

ABSTRACT

Oil palm plantations have become a crucial sector in the Indonesian economy. This research investigates the effectiveness of YOLOv8 in identifying the ripeness of oil palm fruits. The goal is to create a system that uses the YOLOv8 Deep Learning algorithm to detect the ripeness level of oil palm fruits. An automatic detection system will simplify and accelerate the sorting or classifying of oil palm fruits. This research utilizes datasets sourced from the oil palm plantation repository of PTPN IV Medan, North Sumatera, Indonesia. The dataset collected for this research consists of 85 images with a size of 640x640. The dataset is loaded into Roboflow and undergoes pre-processing and augmentation. The total dataset obtained after augmentation is 185 images. After obtaining the API from Roboflow and integrating it into Google Colab for YOLOv8 training, testing was performed on the provided images. The results indicated that YOLOv8 achieved an accuracy of 0.991 (99.1%) in detecting ripe, unripe, and rotten oil palm fruit. The high value of accuracy leads to the potential to increase the efficiency of oil palm plantation management and become the basis for developing AI-based agricultural technology. With further updates, the YOLOv8 model could become a handy tool in oil palm plantation monitoring and management in the future.

Keywords: YOLOv8, Palm Fruit, Object Detection, Deep Learning, PTPN IV.

Paper ID #112

InDRI: Intelligent Diagnosis Radiology Images

Mahmud Isnan,Gregorius Natanael Elwirehardja,Kuncahyo Setyo Nugroho,Imelda Liana Ritonga,Roby Pahala Januario Gultom,Elida Afni Lubis,Bens Pardamean

ABSTRACT

The need for an early screening and Computer-Aided Diagnosis (CAD) system based on Artificial Intelligence (AI) for the field of radiology is essential to realize considering the large impact of lung diseases globally. However, developing AI requires a lot of data, which is a challenge because data in the health sector tends to be limited in quantity and has disparities between diagnostic categories (data imbalance). To overcome this issue, DINO ViT models was trained with the publicly available COVID-19 Radiography Database in our previous study. The model was subsequently implemented into a web application, with this study focusing on the development of a prototype for the application. The study found this application can be useful for medical personnel and doctors in carrying out early screening and CAD. Meanwhile, it also highlighted the general unfamiliarity with AI applications among medical staff, emphasizing the need for increased education and training on AI's role in healthcare.

Keywords: Artificial intelligence, lung disease, radiology images, web application, computer aided diagnosis (CAD).

Paper ID #118

Implementation of Long Short-Term Memory (LSTM) Networks in Weather Forecasting

Bryan Oflahertys, Moh Haikal, Hanis Saputri and Azani Sari

ABSTRACT

This study investigates the use of Long Short-Term Memory (LSTM) networks for enhancing the accuracy of weather forecasting. Weather forecasting is essential for various sectors, including agriculture, commodity trading, utility management, and everyday life planning. Traditional methods relied on human expertise and basic models, but advancements in sensor technologies and machine learning have enabled more sophisticated approaches. LSTM networks, known for their ability to learn from sequential data and adapt to dynamic changes, are particularly promising for this task. Utilizing a dataset with over 100,000 rows of weather data, this research involved detailed preprocessing steps, including handling missing values and aggregating data. The LSTM model was trained and evaluated, showing a significant decrease in loss and accurate temperature predictions. The results demonstrate the model's effectiveness in capturing underlying patterns in weather data and providing reliable forecasts. The study highlights the potential of LSTM networks to improve weather prediction accuracy, benefiting various sectors by supporting informed decision-making. Further research could explore the application of LSTM models in predicting other weather phenomena, such as precipitation and wind speed, across different climatic regions.

Keywords: Weather Forecasting, Long Short-Term Memory (LSTM) Networks, Machine Learning, Sensor Technologies, Data Preprocessing, Sequential Data, Temperature Prediction, Prediction Accuracy, Deep Learning, Dynamic Weather Patterns.

Paper ID #124

Improving Dns Server Resilience Against DDOS Attacks Through Anycast Routing

Julian Daffa Dzaky, Jason Adrianto Saputra, Nicodemus Nathanael Singale, Hanis Amalia Saputri, Azani Cempaka Sari

ABSTRACT

Domain Name System (DNS) is the critical backbone of the internet, translating human-readable domain names into machine-readable IP addresses. DDoS attacks are a type of distributed denial-of-service (DDoS) attacks where the attacker attempts to make a victim's resources unavailable by flooding the server with bots that have high bandwidth which results in a slow server or outright a server shutdown. Anycast routing is a crucial technology in internet services such as DNS servers. This research paper aims to test the features of anycast routing in DNS to evaluate its resilience against DDoS attacks. A quantitative and Black-box technique approach is used, using experiments that simulate DDoS attacks on DNS servers in various scenarios. Data was collected from nine popular websites in Indonesia that use DNS servers with and without Anycast routing. The results showed that Anycast routing, especially with Cloudflare's WARP feature, improved DNS resilience against DDoS attacks by maintaining service availability with an average response time of 172.44 ms for before the attack and 117.66 ms after the DDoS attack. However, this experiment also found the need to use additional protections, such as WARP, to effectively manage and mitigate DDoS attacks. This research also emphasizes the importance of combining Anycast routing with additional protection to improve the resilience of DNS servers against external threats such as DDoS attacks.

Keywords: DNS, DDoS, Anycast Routing, Cloudflare, WARP.

Paper ID #127

Video Game Graphics: The Sold-Out Factor of Modern Games and How It Affects Gamers

M. Adib Aulia Nurkhafif, Sava Cahaya Harisetiagana, Edy Irwansyah and Alif Tri Handoyo

ABSTRACT

This paper explores the pivotal role of video game graphics in shaping gamer perception, influencing purchase decisions, and driving player engagement in the modern gaming market. By analyzing the evolution of visual fidelity and its impact on the industry, we aim to understand how high-quality graphics have become a critical factor for game success. The study employs a Systematic Literature Review (SLR) approach, ensuring a rigorous and reproducible process for identifying, evaluating, and synthesizing relevant studies from Google Scholar. This methodology provides a comprehensive analysis of how graphics quality impacts gamer behavior, market trends, and the overall gaming experience. Through this, we offer valuable insights for game developers and industry stakeholders.

Keywords: Video game graphics, performance, gamer perception, consumer preferences, purchase decision, visual fidelity, player engagement, game market, modern games, game factors.

Paper ID #128

Implementation of A* and Dijkstra Algorithms for optimal Pathfinding: A Case Study of Nearest Hospital Location from Bina Nusantara University

Samuel Andreas Bangun, Febrio Dharma Wijaya, Hanis Amalia Saputri, Azani Cempaka Sari

ABSTRACT

Abstract— In this study, we implement and evaluate A* and Dijkstra's pathfinding algorithms to find the nearest hospital from Bina Nusantara University (BINUS) in Jakarta, Indonesia. To address the urgent need for efficient routing in emergency situations, we first collect location data using Google Maps and model it in a graph structure. Both algorithms are then applied to determine the shortest path from the university to nearby hospitals. Dijkstra's algorithm consistently produces optimal paths, but its computational complexity increases with the number of nodes and edges, making it less efficient in densely connected urban areas. In contrast, the A* algorithm leverages heuristic estimates to prioritize nodes, reducing processing time and proving more effective for large-scale, dynamic navigation scenarios. Our evaluation shows that A* is more suitable for real-time pathfinding in cities, while Dijkstra's algorithm is better suited for smaller or less complex networks. Future work could improve algorithm efficiency by incorporating real-time traffic data, developing advanced heuristics, exploring hybrid methods, and investigating alternative algorithms for urban navigation challenges.

Keywords: Keywords—A* algorithm, Dijkstra algorithm, optimal route.

Paper ID #130

Detection and Analysis for Hoax News on Instagram in Indonesia using Support Vector Machine Methods

Dave Christian and Alfin Rifai

ABSTRACT

Social media is an interactive technology that allows the creation and sharing of content, ideas, and interests through online platforms and communities. Social media is now not only a place to find entertainment, but we can also get a lot of news and information from there. One of these social media is Instagram. Unfortunately, in recent years, Instagram has sometimes been misused to spread hoax news about various things because it can trigger negative things. With the rapid spread of information, the spread of hoax news on Instagram has become a challenge and concern, especially in Indonesia. Because this can threaten public trust and public welfare, in this paper, we discuss the development and implementation of a hoax detection system using the Support Vector Machine (SVM) method, which is a sophisticated machine learning algorithm that can be easily implemented. To train this hoax detection system, we use an existing dataset, namely a dataset consisting of labeled social media posts that are a mixture of legitimate content and hoax content. The dataset is divided into training and testing sets, with an allocation of 70% for training and 30% for testing. Our research focused on seeing how accurate and effective the SVM method is in classifying hoax news on social media such as Instagram. Our approach is to combine features extracted from textual and visual content to train the SVM classifier. The accuracy result obtained was 54.61%.

Keywords: Social media, Instagram, Hoax news, SVM, Machine learning.

Paper ID #133

Systematic Literature Review on Metaheuristic Algorithms in SNP Analysis for Diseases

Jason Sebastian Sulistyawan, Kuncahyo Setyo Nugroho, Bens Pardamean

ABSTRACT

Single-nucleotide polymorphism (SNP) analysis has become a pivotal strategy for drug discovery within bioinformatics, especially for incurable diseases like cancer. With the increasing number of researchers starting to embrace metaheuristic methods, a review was done by gathering papers from the Google Scholar database from 2018 to 2023, which resulted in 20 papers after title, abstract, and content filtering. The findings show that the Genetic Algorithm and the Harmony Search Algorithm have become popular approaches in SNP analysis, particularly in studies on breast cancer, age-related macular degeneration, and colorectal cancer. However, the review shows that while researchers have proven most methods effective in finding disease-related SNPs, a more measurable study in SNP analysis is needed, due to the lack of elaboration on measurement metrics in the found studies.

Keywords: single nucleotide polymorphisms, metaheuristic algorithms.

Paper ID #134

Systematic Literature Review: Deep Learning and Machine Learning Analysis for Batik Peranakan Tionghoa Datasets

Mochammad Haldi Widianto, Mulyani Karmagatri, Rachmi Kumala Widyasari, Aris Darisman, Hazmilah Hasan

ABSTRACT

This research focuses on searching for Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) for Systematic Literature Reviews (SLR). After that, the use of Deep Learning (DL) and Machine Learning (ML) will be analyzed. This study also presents a dataset that makes it possible to utilize ML and DL. SLR results obtained 21 research papers focusing on ML and DL analysis (classification and pattern recognition). However, both algorithms also have their respective advantages and disadvantages. For this reason, this research presents the advantages and disadvantages of both ML and DL analysis for Chinese Peranakan Batik.

Keywords: Batik Peranakan Tionghoa, Datasets, Systematic Literature Review, Machine Learning (ML), Deep Learning (DL).

Paper ID #135

Text Prediction using Attention Mechanism

Teresa Stefanie Sheryl, Anthonio Obert Lais, Azani Cempaka Sari,
Hanis Amalia Saputri, Andien Dwi Novika

ABSTRACT

This research paper will look at how attention mechanisms can work when applied to Transformer models, in the context of achieving better performance for predicting the text of movie scripts. Attention mechanisms have been responsible for major breakthroughs in Natural Language Processing (NLP) in the recent years due to its ability to focus on most relevant parts of an input sequence. Through the use of the Transformer architecture that was introduced in the 'Attention is All You Need' paper, this work explores how attention can model long-range context in text, leading to better predictions than vanilla models. We implement Transformer model from scratch in Python with multi-head attention, feed-forward layers, and softmax activation functions. Extensive experiments on movie script datasets rigorously evaluate the performance of our model compared with state-of-the-art next-word prediction models, showing a promise of much higher word prediction accuracy of our model in movie script contexts.

Keywords: attention mechanism, transformer, text prediction, natural language processing.

Paper ID #139

Comparing ResNet34 and VGG-16 Models in Breast Cancer Detection and Diagnosis

Cyintia Aprilia Limmanto, Geocean Djohan, Lili Ayu Wulandhari and Islam Nur Alam

ABSTRACT

Prevalence of breast cancer has risen each year for the last thirty years and has been one of the most common causes of cancer-related deaths in women. This is due to lifestyle changes and evolving risk factors. Artificial Intelligence, especially Deep Learning models such as VGG-16 and ResNet34 could assist medical professionals in detecting malignancy and speed up decision making to apply suitable medical intervention for affected patients. Early detection and management of breast cancer could significantly improve survival rates, patient outcomes, and quality of life.

Keywords: Artificial Intelligence, Breast Cancer, Pre-trained Model, Pathology, Oncology, VGG16, ResNet34.

Paper ID #140

Analysis of Accuracy Between SVM and CNN Algorithms in Facial Expression Recognition

Ihsaan Hardyanto, Reynaldo Marchell Bagas Adji, Jurike V Moniaga, Ghinaa Zain Nabiilah

ABSTRACT

Accurate facial expression recognition (FER) systems are critical for many applications, including humancomputer interaction, emotion analysis, and healthcare. This study uses the CK+ dataset, which contains 593 sequences of facial expressions across seven emotion categories, to extensively assess the performance of Support Vector Machines (SVM) and Convolutional Neural Networks (CNN) in Facial Expression Recognition (FER). CNN used a deep learning architecture, whereas SVM relied on face landmark coordinates. These models were evaluated using the criteria of accuracy, precision, recall, and F1 score. SVM accomplished an overall score of 100%, coupled with perfect precision, recall, and F1 scores. CNN also showed impressive results in accuracy and robustness. From the above research studies, it can be observed that both SVM and CNN have gained many successes in FER and thus have been selected according to the characteristics of the datasets and requirements of the applications to provide information beneficial for developers and researchers in the FER system field.

Keywords: Facial Expression Recognition, Support Vector Machines, Convolutional Neural Networks, CK+ Dataset, Data Preprocessing, Feature Extraction. .

Paper ID #143

A Motor Activity Analysis as a Depression Indicator: Predictive Approach Using A Hybrid CNN and LSTM Network.

Vinsensius Odilo Sutedja, Frans Andreas, Ghinaa Zain Nabiilah, Jurike V. Moniaga

ABSTRACT

Depression is a prevalent mental disorder affecting behavior, cognition, and physical activity. Early detection and intervention are crucial to mitigating its severe impacts, including suicidal ideation or suicide attempts. This study proposes a novel predictive model using a hybrid Convolutional Neural Network (CNN) and Long Short-Term Memory (LSTM) network to analyze motor activity data as an indicator of depression. Utilizing the "Depresjon" dataset, which comprises activity levels from both depressed and nondepressed individuals, the model extracts features through CNN and processes these with LSTM to identify depression patterns. To address class imbalance in the dataset, Synthetic Minority Over-sampling Technique (SMOTE) was employed, enhancing the model's predictive accuracy. The final model achieved a high accuracy rate of 97.89%, significantly outperforming the other model created. This research demonstrates the potential of combining CNN and LSTM for effective depression prediction, providing a valuable tool for early diagnosis and intervention.

Keywords: Depression, Motor Activity, CNN, LSTM, Predictive Model, SMOTE, Machine Learning .

Paper ID #150

Analysis of Sports Match Charts and Scoring Applications Based on Website and Mobile Using the System Usability Scale Method

Putu Adi Guna Permana, Paula Dewanti, Komang Yuli Santika

ABSTRACT

Many small enterprises have developed their operations using online and mobile-based software due to rapid technological advancements in Indonesia and worldwide, particularly in web-based and mobile (cellular) applications. To facilitate and increase transparency, the sports industry has begun creating software, such as VAR technology for badminton and football. The match organizing committee has numerous concerns about cheating, as many contests in Indonesia still record match scores and lottery outcomes manually. In response, researchers will investigate the automated implementation of schemes and match charts with integrated match assessment and random participant selection. The team will use online and mobile (Android) technology to develop a case study for badminton in this project. The working model (prototype) of the application will be constructed and tested using a prototyping method. It will undergo iterative interactions with the competition committee and continuous modifications until it meets user requirements. This study will analyze the application from both the mobile side for referee evaluations and the internet side for scheduling matches and drawing lots. The aim is to ensure the efficacy of the application in enhancing the efficiency and speed of various activities, both on a small and large scale.

Keywords: match chart, mobile apps, scoring, sport, system usability scale.

Paper ID #151

Design and Analysis of Optical Fiber Network Link Design between Sendawar and Long Bagun

Andrano Mario Hitipeuw, Yus Natali, Catur Apriono

ABSTRACT

Fiber optic network infrastructure is being developed to significantly enhance internet accessibility in remote areas, which is crucial for socio-economic development. This study presents a proposed fiber optic network for the Long Bagun and Sendawar regions, located in East Kalimantan, Indonesia. The network design emphasizes an efficient construction layout to reduce deployment costs and ensure stable, high-speed connectivity. Key technical analyses include the link power budget, rise time, and bit error rate (BER), calculated to meet optimal performance standards. The findings indicate that the proposed network infrastructure may reliably support broadband services, thereby enabling improved access to education, healthcare, and economic opportunities. Calculated and simulated parameters are shown to fall within acceptable limits, reinforcing the system's viability for practical implementation.

Keywords: optical, fiber, Link power budget, Rise Time.

Paper ID #156

Sign Language Translator for SIBI

Ezra Arya Wijaya - Samuel Benediktus Meliala - Muhammad Fadlan Hidayat - Irene Anindaputri Iswanto

ABSTRACT

Deaf people face communication barriers and sign language is essential for them, especially in Indonesia. Indonesia has two main sign languages: BISINDO and SIBI. BISINDO is community developed, while SIBI is adapted from American Sign Language for standardization. In this study, we develop a gesture recognition system to translate SIBI using a convolutional neural network (CNN). Utilizing MobileNetV2, our model achieved over 99.7% accuracy in controlled tests and over 99.9% accuracy on mobile devices. However, live camera tests revealed challenges with accuracy across different scripts. Further optimization is needed. This work advances SIBI sign language recognition and enhances communication tools for the deaf community in Indonesia.

Keywords: SIBI, BISINDO, Sign Language Translation, Gesture Recognition, Convolutional Neural Networks, MobileNetV2.

Paper ID #158

Mitigating Berkson's Paradox with Neural Propensity Score Matching in E-commerce Deals

Nicholas Dominic; Bens Pardamean

ABSTRACT

Within observational Data Science workloads, Berkson's paradox can lead to false causal inferences. One of the prominent quasi-experimental methods to mitigate this selection bias is Propensity Score Matching (PSM). An approach called Neural PSM (NPSM) was developed to overcome the drawbacks of conventional regression-based PSM, including its limited flexibility to model high-dimensional data and non-linear relationships that could cause imperfect covariate balance. In this study, a three-layer depth of Deep Neural Networks was designed to estimate propensity scores and finally balance both control and treatment groups of the Groupon dataset. An unsupervised k-Nearest Neighbor algorithm then helped the model to efficiently detect and cluster similar matching points. From the five salient features presented, NPSM successfully achieved lower differences in Cohen's d effect size, i.e., 0.313 for coupon duration, 0.017 for promotion length, 0.425 for quantity sold, -0.199 for limited supply, and 0.395 for Facebook likes. While these results mostly outperformed Linear Regression (LR) and Random Forest (RF) models, further evaluation is needed to verify the true effectiveness of NPSM in mitigating Berkson's paradox in broader e-commerce contexts.

Keywords: Berkson's Paradox, Quasi-experimental Method, Propensity Score Matching, Deep Neural Networks.

Paper ID #160

ConvNeXt Model for Breast Cancer Image Classification

Devin Setiawan, Andrea Stevens Karnyoto, Indo Intan, Bens Pardamean

ABSTRACT

Breast cancer is an occurrence of cancer that attacks breast tissue and is the most common cancer among women worldwide, affecting one in eight women. In this modern world, breast cancer image classification simplifies the process of analyzing, providing objective and accurate results. By leveraging machine learning algorithms and computer vision techniques, we developed breast cancer detection. The dataset is histopathology dataset from BreakHis and UNHAS Hospital. We chose the ConvNeXt-Tiny model then modified the classifier head as the proposed method. Before the dataset is processed by the model, we augment the images by applying random horizontal and vertical flips, adjustments to brightness, contrast, saturation, and hue using color jitter. The augmentation process simulates real-world variance and enhances the model's ability to generalize to unseen data. Our proposed model gained better performance (accuracy, F1-Score) results compared two other techniques to VGG16 and SVM. According to our experiments, the F1-Score for the ConvNeXt-Tiny model with classifier head modification is higher at 0.9516, than the gain for VGG16 at 0.9292, and the gain for the SVM at 0.83.

Keywords: Breast Cancer, Image Classification, ConvNeXT, CNN, Tranfer Learning.

Paper ID #161

Cancer Prediction using Clinical and Genomic Data Fusion: A Systematic Review

Kelvin Julian, Kuncahyo Setyo Nugroho, Rudi Nirwantono, Bens Pardamean

ABSTRACT

This systematic review provides a comprehensive overview of the methods used to integrate genomic and clinical data in cancer prediction. The review includes 19 studies across various cancers, including breast, colorectal, melanoma, lung, pancreatic, and thyroid. The studies employed different methods to combine genomic and clinical data, including weighted polygenic risk scores, genetic and non-genetic risk scores, and different machine learning algorithms. The results show significant improvements in model prediction performance accuracy across multiple studies. The review highlights the potential benefits of integrating genetic and phenotypic information to improve disease risk prediction models and inform personalized healthcare strategies.

Keywords: cancer epidemiology, clinical and genomic data integration, polygenic risk score.

Paper ID #163

Application of Augmented Reality in Early Childhood Education: A Case Study on Children's Cognitive and Motoric Development

Shanna Carlynda Fernlie, Geovanka Thersia Kurniawan, Puti Andam Suri, Muhamad Fajar

ABSTRACT

This research paper addresses the limitations of traditional learning methods and explores the potential of Augmented Reality (AR) technology as a more effective educational tool. The study focuses on evaluating an AR application designed to teach children about the solar system. Through a Randomized Control Trial (RCT) methodology involving 38 kindergarten children aged 4 to 6 years divided into two independent groups—one taught using puzzle and AR, and the other using only puzzle—the paper examines the app's efficiency in enhancing learning outcomes. Statistical analyses, including Mann-Whitney and t-tests, reveal significant differences (p value < 0.05) between the two groups across most variables, highlighting the promising impact of AR in educational settings. The findings underscore the potential of AR technology to make learning more interactive and effective, suggesting that AR can play a crucial role in modernizing educational practices and improving cognitive development among young children.

Keywords: Augmented Reality, Education, Puzzle, Children, Learning.

Paper ID #164

Blaze Buster Augmented Reality Usability Evaluation

Levina Jane Saputra, Karina Dwinovera Mulia, Puti Andam Suri, Muhamad Fajar

ABSTRACT

Firefighting training is one of the most important things in the career of firefighters, but there are many challenges encountered in traditional training. Such as limitations in simulation training, theoretical training, etc. Overcoming this, the Blaze Buster Augmented Reality (AR) application has been developed. This application provides insight and simulates extinguishing fires using extinguishers in realistic and immersive ways. The purpose of this research is to evaluate the usability of the Blaze Buster AR application and provide feedback that can improve the performance and effectiveness of this application. In this research, the method we will use is heuristic evaluation. We distributed questionnaires to 31 respondents of Bina Nusantara University students. The respondents will be divided into 3 groups, who have used ARbased applications, respondents who are aware of AR but have never interacted directly with AR-based applications, and respondents who do not know much about AR and have never used AR applications. After analyzing the questionnaire data, there was no significant difference between these three groups. Users are also easy to learn and use the application, as the evaluation score for learnability is the highest. While for effectiveness, it has the lowest score, indicating this application needs to develop further in the effectiveness of completing tasks. Overall, the Blaze Buster AR app has a good level of user satisfaction. Although some areas require development, this application is generally well received by users as a tool to perform simulations for firefighting training.

Keywords: Augmented Reality, Firefigthing Training, Simulation Training, Usability.

Paper ID #167

Effectiveness of Scrum in Software Development a Bibliometric Analysis

Indrajani Sutedja, Masagus Padadingsiang Luzcyrill Attar, Luthfi Khan Alfaridzzi

ABSTRACT

To examine the current research state of SCRUM methodology, this study uses a bibliometric analysis and utilizing VOS viewer. We visualized the connection between key concepts in SCRUM literature, focusing on the impact of SCRUM in productivity, software quality, team collaboration, and customer satisfaction. The visualization resulting in a network with four different clusters. The highlight of our analysis is the centrality of SCRUM effectiveness in literature. While some node like productivity and quality are not present, they are likely to be subsumed under the broader concept of effectiveness. Key findings in this literature include both theoretical foundation and practical implementation of SCRUM. This comprehensive approach in this literature provide insight about SCRUM contribution to its overall impact on software development project. While the analysis provides a high-level overview of SCRUM, further in-depth analysis is needed to justify SCRUM impact on software development. In conclusion, between the identified cluster Scrum have indication that the impact of project outcome can be studied holistically, considering its methodology, framework, practice, and events.

Keywords: SCRUM, Software Development, Impact, Effectiveness.

Paper ID #169

User Sentiment Analysis of Online Transportation Platforms Using K-Means and K-Nearest Neighbor

Golda Clarabella Salazar, Adila Nashira Yuhanas, Renaldy Fredyan, and Muhammad Amien Ibrahim

ABSTRACT

Online transportation has been one of the most used type of applications in this day and age, dominated by the platforms Go-Jek and Grab. In order to improve their service and user satisfaction, this research aims to determine the user sentiment analysis on both application using the K-Nearest Neighbor (KNN) method, a supervised learning algorithm used to classify data according to their nearest neighbors, and the K-Means method, an unsupervised learning algorithm used to group data into clusters according to their similarities. Both methods will be implemented using RapidMiner. The data used are 199 usernames and ratings on both applications, collected from Kaggle. The KNN method resulted in a 100 percent accuracy and the K-Means method proved that the cluster with the most items is the one which had the ratings above 4.5. This proves that the user sentiment analysis of online transportation platforms, such as Go-Jek and Grab, using K-Nearest Neighbor (KNN) and K-Means reveals that the sentiments are, on average, positive sentiments.

Keywords: Sentiment Analysis, KNN, K-Means, Online Transportation.

Paper ID #174

Fraud Detection in Credit Cards using Machine Learning

Seftico Frig Injek B and Muhammad Fadzli Maula

ABSTRACT

Credit cards are the most popular payment method. With the rapid advancement of technology, the world is increasingly using credit cards instead of cash in daily life, which opens up numerous opportunities for fraudulent activities. Fraudulent transactions can take many different forms and fall under a number of different headings. This study employs several machine learning approaches. Three classification methods were utilized including Logistic Regression, XGBoost, and Gradient Boosting Classifier. The best classifier identified in this study is XGBoost. When comparing Accuracy, Precision, Recall, F1-score, MCC, and AUC, XGBoost demonstrates significantly higher values across all metrics.

Keywords: Fraud Detection, Credit card, Logistic Regression, XGBoost, Gradient Boosting Classifier.

Paper ID #177

Consumer Intentions in Utilizing QR Codes for Mobile Payments

Nur Damayanti, Pratiwi Kuslita and Jezzy Della Puspita

ABSTRACT

Numerous cellular payment services are currently available in Indonesia, and companies are offering their services in a competitive manner. However, the adoption rate in Indonesia is slow due to various reasons. This research aimed to identify the factors that impact the intention and behavior of using QR code technology by applying the UTAUT2 model. The UTAUT2 elements utilized in this study include business expectations, performance expectations, hedonic motivation, habits, and the trust factor. Data was gathered from 120 consumers who utilized QR code mobile payments in Greater Jakarta through an online questionnaire. The adoption quantitative analysis method and multiple linear regression were employed to analyze the data using descriptive and inferential statistics. The findings revealed that several factors significantly influenced consumers' intentions to use QR code-based payments, with performance expectations, habits, and beliefs being influential, while business expectations and hedonic motivation had no effect. The results of this study shed light on what consumers seek from QR codes and how providers can influence consumers' perceptions of this technology.

Keywords: Acceptance, Consumer intention, Mobile payment, QR code.

Paper ID #178

Analyzing XSS Attack Information Content on Social Media

Khaerunnisa Hanapi, Sitti Harlina, Suci Ramadhani Arifin, Arham Arifin, Michael Oktavianus, Ahyuna

ABSTRACT

Social media has become more than just a communication tool; it's now a rapidly evolving platform for sharing information, including cybersecurity threats like XSS attacks. This study investigates if analyzing collections of tweets can identify those containing XSS attack information. By accurately extracting this information, we can effectively classify tweets as containing or not containing XSS attacks. Our research focuses on evaluating how well feature extraction methods perform in achieving this classification accuracy. As the result, the 2-gram model with TF-IDF Vectorizer might be a more suitable choice with accuracy exceeding 97% and demonstrates better tolerance for overfitting due to the inherent properties of TF-IDF.

Keywords: XSS, twitter, n-gram, vectorizer, machine learning.

Paper ID #179

The Impact Perceived Desirability, Propensity to Act, and Perceived Feasibility towards Technoprenurial Commitment Based on A Entreprenurial Event Theory

Stefanus Rumangkit, Aloysius Bagas Pradipta Irianto , Antonius Satria Hadi

ABSTRACT

Technopreneurship represent a form of entrepreneurship that emphasizes entrepreneurial skills and technology. Studies on technopreneurship have been conducted, but research investigating antecedents of technopreneurship based on the entrepreneurial event model (EEM), is still limited. Most research on technopreneurship is dominated by the use of the theory of planned behavior (TPB). Therefore, this study aims to investigate the driving factors in EEM, namely perceived desirability, propensity to act, and perceived feasibility to technopreneurship intention. In addition, another purpose of this study is to explore technopreneurship intention towards technopreneurship commitment. To achieve this goal, the study used quantitative research design, primary data sources, and data collection methods using questionnaires. The sample in this study amounted to 240, with the sampling method using purposive sampling. Reliability, validity, and hypothesis testing using Smart-PLS software version 3. The results showed that perceived desirability affects technoprenurial intention, propensity to act affects technoprenurial intention, perceived feasibility affects technoprenurial intention, and technoprenurial intention affects technopreneurial commitment.

Keywords: Technopreneurship, Entrepreneurship Intention Entreprenurial Event Model.

Paper ID #180

MediaPipe's Pose-Based Human Activity Recognition with LSTM

Nicholas Hans Muliawan,Frederick Nathan Irmawan,Edbert Valencio Angky,Abram Setyo Prabowo

ABSTRACT

It is difficult to comprehend and categorize human movements in Human Activity Recognition. Despite being widely utilized, convolutional neural networks (CNN) might not ade- quately represent the intricacy of motions. This work investigates an alternative method for classifying human motion: the LSTM model combined with MediaPipe. Sequential processing is used by the LSTM model for keypoint sequences, which improves its accuracy in identifying complex human movement features. Although OpenPose provides precise body mapping, MediaPipe is used in this research because of its computational efficiency and ease of integration. Using CV2 libraries, preprocessed video data is read at 15 frames per second. MediaPipe software is then used to extract 33 keypoints coordinates from each frame. Then, in order to make these keypoints compatible with the LSTM model, they are compressed into single-dimensional arrays. The keypoints from each picture frame are taken out and combined with other frames for a total of 15 frames into a single sequence. The aim of this study is to evaluate the usefulness of the LSTM model in human action classification by contrasting its performance with more conventional sequence modeling methods. Following evaluation, we employed the Recognition of Human Action dataset from Kungliga Tekniska Hogskolan (KTH) Uni- versity, which is used by LSTM models. Over 99% of the metricsAccuracy, Precision, Recall, and F1-scorewere attained by the model.

Keywords: Computer Vision, MediaPipe; Human Action Recognition, LSTM.

Paper ID #181

Towards a Preliminary Usability Analysis of an Augmented Reality Photo Booth Application for Gen Z: Insights on Users, System, and Interaction for Couples and Non-Couples

Vincentia Catherine, Tiffany Joycelyn, Muhamad Fajar, Puti Andam Suri

ABSTRACT

The objective of this study is to further assess and develop ZenithAR , an Augmented Reality based application by adapting it to two distinct groups of people, consisting of 10 individuals in relationship and 10 individuals currently not in any relationship. Usability was evaluated through a questionnaire delving into key aspects such as USE (User, System, Interaction) aspects. With a sample size of 20 respondents, the analysis uncovered no statistically significant disparities in usability between the two user groups, as determined by the Mann-Whitney U test and t-Test (independent samples). These findings suggest that ZenithAR offers consistent usability, regardless of relationship status.

Keywords: Augmented Reality, Application, Usability.

Paper ID #182

Comparison of Sound Classification Algorithms on NIGENS Dataset

Jolin Tiomar, Stephanie Angela, Justin Anthony Sudijanto, Gerry Ezekiel Liwe, Dani Suandi, Dany Eka Saputra

ABSTRACT

This study examines the performance of several machine learning and deep learning algorithms in classifying sounds from the NIGENS dataset, which consists of 15 unique sound classes. The implementation included five distinct algorithms: Convolutional Neural Networks (CNN), k-Nearest Neighbors (KNN), Support Vector Machines (SVM), Long Short-Term Memory Networks (LSTM), and Random Forest. The models' performances are evaluated using classification measures such as Accuracy, precision, recall, F1-score, and Receiver Operating Characteristic (ROC) curves. The Random Forest method demonstrates the best overall accuracy of 86% when compared to other algorithms, with precision, recall, and F1-score values of 0.88, 0.86, and 0.86.

Keywords: Sound classification, machine learning, deep learning, NIGENS dataset.

Paper ID #183

Analysis The Benefits of ChatGPT Implementation on Student Knowledge Development in Case-Based Learning (CBL)

Samual Tanuwijaya; Jerry Agustinus; Sulistyo Heripracoyo*

ABSTRACT

The development of AI technology has been widely implemented in various sectors, one of which is education where it is used as a source of information to determine the effect of ChatGPT in the development and understanding of students in Case Based Learning. Case Base Learning is a learning sector that requires critical thinking, cognition skills, and the ability to represent processed information, and with AI, students were expected to have more observation regarding the case's topic. This research was conducted to test the capabilities of ChatGPT against other AI's differentiated based on NLP groupings in the context of moderating. Gemini and Copilot became the other Ai's that we choose to be an additional variable in the research process. The analysis method used in this research was done by distributing questionnaires to purposely selected 100 samples. The tool for the data analysis process is using SmartPLS 4.0 by using the moderation model. From the data processing conducted it was found that based on the specified research model, ChatGPT affects Student Knowledge Development by 65.4%, while in practice, Other AI variables can negatively interfere ChatGPT output by 6%. As the result of this observation, it shows that the comprehension index of ChatGPT to help student's learning and knowledge level was dominant and consistent, based on collected data about the significant level and comparison between ChatGPT with other AIs.

Keywords: ChatGPT, Artificial Intelligence, Knowledge, Case Based Learning.

Paper ID #185

Developing a Robust Face Recognition Algorithm with Anti Spoofing Using InceptionV3 and YOLOv8

Anselyus Patrick Siswanto, Aaron Scott Buana, Anderies, Andry Chowanda

ABSTRACT

With the development of technology, also comes the rise of feature-based recognition systems. One such system is the face recognition system. Despite the rapid improvements to the system, it has a risk in that the system can become susceptible to spoofing. Our research aims to address this issue by combining two models, one focusing on face recognition, while the other is focused on detecting any spoofing. Utilizing InceptionV3 strong feature extraction performance and classification accuracy and YOLOv8, known for its real-time object detection capabilities, we desire to develop a combined model capable of applying accurate face recognition and capable of dealing with spoofing attacks. The algorithm works by first identifying the captured input as real or fake using YOLOv8, once the input is confirmed as real, the process continues with a facial recognition with InceptionV3. Results of testing showed that the algorithm performs accurately in both tasks. However, the resulted integration caused a low framerate to be captured due to high computational power requirement. Future works aims to find methods to enhance the efficiency of the model, either by optimization or utilizing a hardware with higher computational power, to hopefully create a robust system that can be used for example a face recognition attendance system.

Keywords: CNN, Face Recognition, YOLOV8, Anti-spoofing, Real, Fake, InceptionV3.

Paper ID #186

House Price Prediction Using Regression in Machine Learning

Andrew Leonardo, Muhammad Maulana

ABSTRACT

Machine Learning is the study of algorithms and statistical model in which computer systems use to perform specific tasks without being explicitly programmed to do. Using this, this journal can track certain patterns and use this data to better understand a certain task and do it more efficiently, For example; Google search uses machine learning to see what the user searches for and curate a search algorithm based on what a user likes, whether it is shopping for clothing items or cat videos. Sometimes after viewing the data, the paper cannot interpret the extract information from the data. In that case, this paper apply machine learning. With massive datasets, this paper extract them into relevant data from patterns to use cases. One example where extracting massive amounts of data into relevant information is house prices, with inflation on the rise this paper can use these data to determine how much house prices will change in the future using regression. With this, this paper can determine which regression algorithm works best.

Keywords: Regression, Machine Learning, Housing Cost, Inflation, Algorithm.

Paper ID #191

Document Route Recording System: Tool for Tracking Documents in the Case of Guimaras State University Procedure

Adrian Forca

ABSTRACT

This study focused on the Design and Development of the Documents Route Recording System as an intervention tool brought by Information Technology to uplift the present processes of transferring documents to various units of Guimaras State University based on the problems identified by the researcher of this study. The Software has been developed through the inspiration of the Modified Waterfall Model provides three major modules: Route Creation, Acknowledgement, and Tracking, and is packed as one System Software. Evaluating the Effectiveness of the Document Route Recording System, ISO 25010:2015 Software Quality Instrument was used and interpreted using the Descriptive Research Design to illustrate the respondents that lead to the justification of the objectives through a conclusion that all the objectives of the study were met and effectiveness of the software in terms of different Software Quality Characteristics are all Interpreted as “Very High”. The Study recommends full implementation so that the organization’s present problem will be eliminated through the developed system. It is also recommended to future researchers, who may decide to modernize and improve the system to help to utilize its potential and develop for improved features and expansion of scope.

Keywords: procedure, system, transfer, track.

Paper ID #196

User Experience Analysis On M- Bayar Electronic Money Application Using In-Person Usability Testing Method

Muhamad Rayvan, Pio Simanullang, Rendy Trisukma, Riyan Leandros and Silvia Ayunda

ABSTRACT

The m-Bayar application is a mobile-based purchase and payment electronic money service product launched by PT E2pay Global Utama in 2018. Based on the review results obtained on the Playstore, the m-Bayar app received a rating of 2.3 out of 5 stars, with the number of reviews as many as 239 out of a total downloads of 10 thousand. In the results of this review, there were complaints about the level of user satisfaction related to the login and sending processes and receiving a one-time password (OTP) code. The research was conducted for the issue taken on send and receive OTP code and login, using the usability testing in-person method with the usability assessment components namely learnability, efficiency, memorability, errors, and satisfaction. This research determined the level of user satisfaction in using the send feature, receiving an OTP code, and logging in using the interview method as a data collection technique to 15 users who use the application. It obtained the following results from this training: learnability at 33%, efficiency at 43%, memorability at 80%, errors at 43%, and satisfaction at 70%. As the result, m-Bayar has improved the quality of the user experience by adding method of sending OTP code via WhatsApp application and receiving OTP codes that can be entered automatically on the verification page, and also additional menu for a call center button on the pop-up fails to login.

Keywords: electronic money, user experience, usability testing, OTP.

Paper ID #197

Trend and Correlation Analysis of Instagram Activity Using Data Mining and Statistics

Wilem Musu, Indra Samsie, Aldi Bastiatul Fawait, Nadia Lempan, Nurliah, Maechel Maximiliano Gabriel, Sinar.

ABSTRACT

With the growing importance of social media for brand engagement, there remains a limited understanding of how specific metrics—such as Reach, Followers, and New Followers—impact Instagram user interaction over time. This research seeks to address this gap by examining which variables most effectively drive Engagement on Instagram, providing insights for strategic content optimization. Through an analysis of 100 posts, using multiple linear regression and decision tree methods, the study investigates the relationship between Reach, Followers, New Followers, and Engagement. Results indicate that Reach, Followers, and New Followers are not statistically significant predictors of Engagement, as evidenced by high p-values (all > 0.05). Decision tree results demonstrate a Mean Absolute Error (MAE) of 0.0226 and an R^2 Score of 0.8003, suggesting moderate predictive accuracy but with potential for refinement. Moving average analysis reveals fluctuating Engagement with no stable long-term trend. A correlation matrix further shows that Reach and New Followers exhibit high correlations with Engagement (0.9723 and 0.9707, respectively), while Followers show a weak correlation (0.2575). These findings highlight the limited impact of Followers on Engagement, underscoring the importance of Reach and New Followers. This study contributes novel insights by identifying key engagement drivers, emphasizing the need for more targeted strategies in Instagram campaign planning to enhance user interaction.

Keywords: Instagram, Engagement, Reach, Followers, Correlation.

Paper ID #198

Vehicle Detection Using You Only Look Once V8 Based On Architecture Modification Method

Yudistira Dwi Permana

ABSTRACT

Object detection remains challenge by significant constraints in computer vision, including difficulty in recognizing small, occluded, or contextually overlapping objects. Existing architectures often exhibit limitations in accuracy and speed, particularly in dynamic environments. This Research propose a modified YOLOv8 architecture method by adding the RepNCSPELAN4 Module layer to the head to detect to optimize detect layer on small and large layer vehicles on traffic scenes. The training process was compared to YOLOv8, and the Proposed Model. This study found that the adjustment of YOLOv8 architecture in the detection segment can affect the preparation results and provide much better detection results than the default YOLOv8, which only achieves the highest mAP value of 94 and poor detection of small objects. Specifically, it improves mAP0.5 from 0% to 0.30%, and mAP0.5:0.95 from 0% to 0.021% in small object detection. In real traffic scene situations, RepNCSPELAN4-YOLOv8 illustrates significant changes in various conditions, demonstrating its quality and ffectiveness in identifying small objects even in challenging situations.

Keywords: YOLO Architecture, Object Detection, RepNCSPELAN.

Paper ID #200

A Dual-Parameter Sensing System for an Environmental Air Monitoring

Kristoforus Naidu, Samuel Alfonsus, Bernard Fabian, Jason Yovan Hermanto, Selvi Lukma

ABSTRACT

This research investigates a novel air quality monitoring system to fulfil a precise and reliable environment assessment. Advanced sensor technologies are utilized to detect various kind of pollutants such as particles matter, volatile organic compounds and gasses. Two parameters of humidity and temperature are highlighted in this research. The experiment has yielded a notable decreased temperature from 28.1°C to 23.9°C and an increased increase in humidity from 76% to 90% during the monitoring period. A slight drop is also observed as much as 87% by the end of the period. The improvement of air quality in this research refers to a satisfying correlation between higher humidity, lower temperatures and a refined air quality with a real time data logging and low latency wireless connectivity of the utilized devices. Thus, this research contributes significantly to the global efforts in addressing air quality issues yet promoting healthier and more sustainable living environments. .

Keywords: Air Monitoring, Humidity, Pollutants, Temperature.

Paper ID #201

Sedudo Nganjuk Website Usability Analysis Using User Experience Questionnaire

Alif Kurnia, Hilmi Nugroho and Riyan Leandros

ABSTRACT

Online Regional Integrated Electronic System (Sistem Elektronik Terpadu Daerah Online/SEDUDO) website, which serves as a centralized platform for population administration information, was Launched by the Nganjuk District Government through Department of Communication and Information (Dinas Komunikasi dan Informatika/Diskominfo) and this website aims to facilitate public access and accelerate online population administration services. However, in line with operation, no usability testing has been conducted to determine user satisfaction and ease of use but the research has expectations with the target of all aspects of getting all good results. To address this, a study was conducted using the User Experience Questionnaire (UEQ) and usability testing methods. UEQ analysis shows that the website scores above average in terms of attractiveness at 1.47; perspicuity at 1.34; efficiency at 1.20, dependability obtained 1.20; and stimulation got the best score at 1.53 with the predicate Good, while novelty got the lowest average score with a score of 0.98. From the UEQ results, it still did not reach the target. Therefore, usability testing was needed for further tests. Usability Testing assesses Learnability, Memorability, Efficiency, Error, and Satisfaction, resulting in 20 Positive Findings, 13 Negative Findings, and 21 Suggestions for improvement from participants. Among the 21 suggestions, one of the suggestions is providing different file sending options.

Keywords: Website, UI/UX, UEQ, Usability Testing.

Paper ID #203

Decoding Financial Positivity: Sentiment Analysis of Mandiri Sekuritas's Twitter Posts

Dian Kurnianingrum, Isma Addi Jumbri, Mila Andria Savitri, Nugraha Nugraha, Disman Disman, Rachel Monica

ABSTRACT

This research analyzes the positive sentiments in Mandiri Sekuritas's tweets over the past year. Using sentiment analysis and topic modeling, we identified the main themes in these positive tweets and examined how sentiment varies across different topics. The study reveals common themes such as settling issues, building friendships, making investments, gaining financial benefits, and engaging in promotions and transactions. The research also highlights differences between 2022 and 2023, with 2022 focusing more on the stock market and 2023 emphasizing social connections and buying opportunities. One major limitation of the study is that it relies heavily on keyword frequency, which can miss deeper context and nuances. Additionally, the dataset is limited to a specific time frame and platform, potentially not representing the broader communication strategies of Mandiri Sekuritas. Future research should include more diverse social media platforms and time periods, then combine qualitative and quantitative methods to better understand the company's social media strategy.

Keywords: Sentiment Analysis, Topic Modeling, Social Media Analysis, Financial Communication, Stock Market.

Paper ID #204

Optimizing Diabetes Prediction using Machine Learning with Data Deviation

Budi Triandi, Lili Tanti, Ratih Puspasari, Mas Ayoe Elhiyas, Marwan

ABSTRACT

Diabetes mellitus is a chronic disease that affects global health with an increasing prevalence rate. Early prediction can provide opportunities for earlier intervention and better management of health conditions. This study explores various classification techniques to analyze data sets that include potential risk factors such as family history, body mass index (BMI), blood pressure, and blood sugar levels. This approach uses several machine learning algorithms such as Decision Trees, Gradient Boosting, support vector machines (SVM), K-Nearest Neighbor (KNN), Naive Bayes (NB) and Random Forest (RF) to identify patterns related to the development of diabetes. In this study, we have carried out a comparison of several machine learning (ML) algorithms, aiming to classify the "No Diabetes" or "Diabetes" class by considering several parameters such as, Age, gender, polyuria, polydipsia, sudden_weight_reduction, weakness, polyphagia, genital_thrush. , visual_blurry, itching, irritability, delayed_partial_healing_paresis, muscle_stiffness, alopecia, obesity and classes collected in one dataset. The ML model is optimized by normalizing standard deviation data and 20-fold cross validation to get the best model and to determine the log loss or accuracy matrix and its performance. The results show that the model built using Gradient Boosting and SVM gave the best accuracy results on the entire test set, the Decision Trees, Random Forest and k-NN models also gave good results, while Naïve Bayes proved to be the least good in terms of accuracy results.

Keywords: chronic disease, diabetes, standard deviation of data, classification, prediction.

Paper ID #206

The Effect of Social Media Influencers on Business Sustainability: Understanding Customer Behavior Change Towards Sustainable Usage Patterns

Maria Grace Herlina, Alexandra Li Budiharto, Elizabeth Margaretha Lukito and Karto Iskandar

ABSTRACT

Abstract—The study aims to fill existing research gaps by creating a new framework that explores the impact of social media influencers on sustainable usage patterns, focusing on business sustainability as a mediating factor. In this research, non-probability judgmental and purposive sampling methods were used. Due to the size and distribution of the population, sampling was also chosen based on the researcher's own judgment and experience. Structural equation modeling (SEM) is used as the data analysis method. Path coefficient analysis yielded significant findings. Social media influencers were found to influence business sustainability significantly. Apart from that, social media influencers have a significant negative affect on sustainable usage patterns. Business sustainability also significantly influences sustainability usage patterns, with a powerful influence. This enriches the dynamics of business sustainability, proposing new knowledge about how it influences this relationship.

Keywords: Keywords—business sustainability, sustainable usage patterns, social media influencers, digital users, mediating variable.

Paper ID #208

Benchmarking Multiple Machine Learning Algorithms for Sentiment Analysis on Sexual Violence

Ririn Nurdiyanti, Ema Utami

ABSTRACT

Sexual violence is not a new phenomenon in Indonesian society. It has occurred among women, men, and adolescents in various global conflicts. YouTube comments are a good source of data for sentiment analysis because they provide a large amount of text-based input from users. The data used in this study were collected from YouTube comments through a crawling process conducted on April 3, 2024. From crawling the comments on 6 videos, the data were combined into a single CSV file with a total of 11,628 entries, which was reduced to 11,133 entries after the cleansing stage. The results of this study show that the SVM model achieved the highest accuracy at 82.50%, followed by Logistic Regression with an accuracy of 82.18%. The Random Forest and XGBoost models had almost identical accuracies, at 81.64% and 81.60% respectively. The Naive Bayes model had an accuracy of 80.11%, while KNN showed the lowest accuracy among all models, at 78.39%.

Keywords: Sexual Violence, Machine Learning, Algorithms, Sentiment Analysis.

Paper ID #211

Low Cost Dual Sensing System for Soil Quality Enhancement Using Temperature and Humidity Monitoring

Riki Akbar Nc Dougall, Gian Guido Hibatulloh ,Reyhan Seifan Safero,Wan Mohamad Axel Rinaldi,Dr. Selvi Lukman, S.T., M.T

ABSTRACT

This paper investigates the system design for soil quality enhancement. The system device measures soil temperature and humidity to provide a soil quality dataset. Data is collected in a period of 4 weeks. In this research, a microcontroller, temperature sensor, humidity sensors and a display module are occupied. By utilizing these dual sensors, it is observable that optimal soil conditions are achieved when temperature is ranging from 20°C to 30°C and the humidity is ranging 60% to 80%. Therefore, this research highlights the potential usefulness in proving an effective system for soil suitability of agricultural uses. Future enhancements could focus on improving sensor protection and automating calibration by providing real-time data monitoring. Thus, this research can facilitate the information of crop management decisions, irrigation procedure and supporting an efficient and sustainable agricultural production.

Keywords: Agriculture, Crop, Humidity, Soil, Temperature.

Paper ID #213

Enhancing Infrastructure Monitoring Pothole Detection in Road Images Using YOLOv8 and Open Datasets

Jonathan Wijaya, Muhammad Abiyyu'Ammaar, I Ketut Dharma Wijaya Kusuma & Alexander Agung Santoso Gunawan

ABSTRACT

Roadways are one of the main accesses for land transportation to be able to cross from one place to another. However, it's one of the public infrastructures that has the most damage problems to be maintained such as pothole problems. This paper aims to solve the pothole problem by making an AI model that can easily and quickly detect potholes so that the responsible staff and other road users can be informed to prevent greater damage and accidents that can occur due to potholes. The method for the development of a pothole detection system on roads is by using the YOLO (You Only Look Once) Object Detection based on deep learning algorithms and computer vision. This research was conducted by using a combination of 4 online open datasets of 2661 pothole images that were pre-processed by duplicate checking, removing low quality images, and adding pothole annotations. The dataset annotation is divided into 3 size categories, namely small, medium, and large potholes, which in each category has 500 images that have been labeled and augmented before. The training and validations result shows that the model is performing well in detecting road potholes with Precision, Recall, mAP50 over 70%, and mAP50-95 of 50%. Based on our experiments, we concluded that this object detection system is expected to increase the efficiency in detecting pothole damage scattered on road infrastructure spread over each region to be able to minimize further damage to road infrastructure and increase the safety of road users.

Keywords: Pothole, Road Infrastructure, Deep Learning, Object Detection, YOLO.

Paper ID #214

Software Quality Assessment Methods and Standards in Weld Defect Detection for Shipbuilding

Yonky Pernando, Ford Lumban Gaol, Haryono Soeparno, Yulyani Arifin

ABSTRACT

Shipbuilder safety and performance, structural integrity of welded joints in shipbuilding is of utmost importance. Traditional manual inspection methods to detect any potential defect can be time consuming and susceptible to human errors; alternative inspection systems have proven more cost effective and accurate solutions than manual approaches for defect identification. This paper investigates how advanced software quality assessment standards and machine learning techniques such as Convolutional Neural Networks (CNNs) and You Only Look Once (YOLO) object identification framework can enhance weld defect detection. Research undertaken for this thesis addresses three core questions. 1) Which standards provide effective software quality assessments used for weld defect detection systems? ; and 2) In what ways will they impact efficiency and reliability. How will implementation of these standards increase accuracy in manufacturing processes? Integrating high-quality annotated datasets, optimizing joint preparation and parameter settings, and using cloud solutions for computing needs can enable industries to achieve more reliable, efficient, and scalable defect detection. This proactive approach not only enhances immediate product quality, but also contributes to long-term durability and performance, decreasing maintenance costs and increasing overall reliability for steel plates used for marine applications. Furthermore, evidence has revealed that adopting software quality assessment standards in weld defect detection significantly enhances structural integrity as well as operational efficiency of shipbuilding operations.

Keywords: Software Quality Convolutional Neural Networks YOLO Weld detection.

Paper ID #220

PORTUGUESE MEALS IMAGE RECOGNITION USING CNN MODELS

Johanes, Devin Jonathan, Anderies, Andry Chowanda

ABSTRACT

Recent research in deep learning has played a crucial role in many areas especially in image classification. Processing and analyzing large volumes of visual data has proven to be a huge success for deep learning techniques, which imitate the neural networks found in the human brain. This paper has an objective on identifying Portuguese cuisine using deep learning techniques, by creating and comparing three different models such as Multi-Layer Perceptron (MLP) as an Artificial Neural Network (ANN), Long Short-Term Memory (LSTM) as a Recurrent Neural Network (RNN), and ResNet-50, a pre-trained Convolutional Neural Network (CNN). Each model is trained using a carefully chosen dataset of Portuguese meals that represents the many types of culinary. We evaluate the models in detail using accuracy and loss performance criteria. Our experimental results indicate that the ResNet-50 model outperforms the others with a 90% test accuracy and a 97% training accuracy. Still, more investigation is needed.

Keywords: Food, Image Classification, Deep Learning, Portuguese Meal, Algorithm, Computer Vision. .

Paper ID #222

Simulation-Based Optimization of Autonomous Vehicles using Genetic Algorithm

Karldritz Farrel Hanson, Kara Kalani Al Biruni, Anderies, Andry Chowanda

ABSTRACT

Autonomous vehicles are becoming a reality, yet it is only truly autonomous with a strong model. The system can be trained by implementing a genetic algorithm as an optimizer in its simulations. The authors explore existing studies in learning algorithms for AVs training and, through this paper, propose NeuroEvolution of Augmenting Topologies (NEAT), a type of genetic algorithm, to be implemented to train neural network models for AVs in a simulated environment. An optimization method is further done which involves hyperparameter tuning to find the optimal set of hyperparameters for the learning algorithm. The findings suggest that NEAT not only accelerates the development process but also enhances the AV's adaptability across different environments, achieving peak performance with a population size of 60 and a mutation rate of 0.8. This configuration attained the highest fitness scores 84, 98, and 100 on Tracks A, B, and C, respectively, with optimal results observed around the 50th generation. This research focuses on the application of genetic algorithm to AV simulations with optimization, uncovering NEAT's potential. Future work will focus on simulations in more complex and real-world environments.

Keywords: Genetic Algorithm, Autonomous Vehicles, NEAT Algorithm.

Paper ID #223

YouTube Videos Clickbait Classification Utilizing Text Summarization and Similarity Score via LLM

Delvin Hu, Anderies, Andry Chowanda

ABSTRACT

Clickbait detection is used to check for clickbait, preventing users from wasting their precious time watching videos that might have misled them. Past researches have used methods such as Deep Learning algorithms that take into account the thumbnail of the video, the statistics, and the comment section. There are also researches that uses LLMs for detection.With this in mind, the author introduces a new way of clickbait detection through the combination of both YouTube statistics and LLMs, as well as the addition of Youtube transcripts as one of the determining factor. This is done with the use of text summarization and OpenAI's ChatGPT. The video transcript is extracted and summarized. ChatGPT will then create a new title suitable for the summarized transcript. The made up title is then compared to the original title and be given a score based on their similarity and used as a new feature for the model. ChatGPT will also be asked to directly predict the presence of clickbait directly from the title and the summarized transcript. All the features are used to create a new machine learning model. The algorithms used for the classification include Logistic Regression, Naïve Bayes, Random Forest, Multi Layer Perceptron, and Support Vector Machine. Random Forest achieved the highest f1-score out of all the models with the score of 87%.

Keywords: Text Summarization, LLM, ChatGPT, Clickbait, OpenAI, Transcript, Prompts, Youtube Clickbait Classification (YCC).

Paper ID #230

Model Aggregation with Attention Layer with Convolutional neural network for Brain Tumor Classification

Risma Yulistiani and Felix Indra Kurniadi

ABSTRACT

Brain tumors are among the most lethal illnesses globally. This tumor is a result of abnormal tissue proliferation in the brain, leading to various complications such as paralysis and other related aspects. In this study, we have introduced a novel approach called the Aggregate Convolutional Neural Network with Attention Model. The research findings indicate that the proposed strategy yielded a disappointing outcome of just 0.3 after 10 epochs of trial. This indicates that the model that has been developed necessitates a process of meticulous adjustment.

Keywords: brain tumour, Deep Learning, Attenntion Network, Aggregate Attention Network, CNN.

Paper ID #251

Detection and Classification Model for Respiratory Diseases Using Machine Learning Techniques

Lili Tanti, Budi Triandi, Bob Subhan Riza, Yan Yang Thanri, Juli Iriani and Ratih Puspasari

ABSTRACT

In this study, we aim to develop a respiratory disease detection and classification model using machine learning techniques. Respiratory diseases are a significant global health problem, and early detection is critical to improving patient outcomes. In this study, we collected data from multiple sources to analyze and compare the performance of several machine learning algorithms, including kNN, SVM, Gradient Boosting, Adaboost, Neural Network, Random Forest, Naïve Bayes, and Logistic Regression. These models were evaluated based on performance metrics such as Area Under the Curve (AUC), classification accuracy, F1 Score, precision, and recall. The results showed that Random Forest and Naïve Bayes models performed best in terms of accuracy and class separation ability. This study also emphasized the importance of feature analysis and correlation in improving model effectiveness. These findings are expected to contribute to the development of more accurate diagnostic tools for respiratory diseases, as well as support more timely and effective medical interventions.

Keywords: Model, Detection and Classification, Respiratory Diseases, Machine Learning.

Paper ID #268

Evaluation Model of Urban Regional Knowledge Management Systems in Indonesia for Natural Disaster Mitigation

Wahyu Sardjono, Astari Retnowardhani, Maryani, Erma Lusia, Muhammad Zarlis, and Widhilaga Gia Perdana

ABSTRACT

Nearly the whole Indonesian Archipelago is threatened by earthquake hazards, both on a small and large scale. This indicates Indonesia's susceptibility to earthquakes, tsunamis, volcanic eruptions, and other geological calamities. With the assistance of other pertinent ministries and institutions, the National Disaster Management Agency (BNPB) in Indonesia is in charge of carrying out disaster management at the national level. In order for mitigation to function effectively and efficiently, this research is vital since it is based on the establishment of an evaluation model for an urban knowledge management system in Indonesia. The goal of the project is to create an assessment model for Indonesian urban knowledge management systems that can be applied to the deployment of autonomous socialization programs for disaster mitigation. Factor analysis and regression analysis are the primary techniques used in this work. Regression analysis is used to create a model that can represent the current state of mitigation socialization and be used to develop implementation strategies in the future. Factor analysis is used to identify dominant factors in the implementation of knowledge management systems that support independent socialization.

Keywords: mitigation, knowledge management systems, SECI, national disaster.

Paper ID #269

Determining Key Performance Indicators of IT Balance Scorecards for Measuring Information Technology Performance in Companies

Wahyu Sardjono, Astari Retnowardhani, Maryani, Erma Lusia, Sarim, and Widhilaga Gia Perdana

ABSTRACT

The important role of Information Systems in a company is to support business processes so that they become more effective and efficient, but information technology performance factors are also important to know so that the contribution of information technology infrastructure in the company can be truly measured with certainty. This study was conducted to provide an overview of how to determine key performance indicators in performance measurement through the IT Balance Scorecard. The Exploratory Factor Analysis (EFA) approach was used to process the data, several respondents were asked to provide their opinions through a questionnaire built with the development of research instruments based on the IT Balance Scorecard measurement theory. The results of the study showed that there were 4 (four) new factors that could be used as key performance indicators related to the four perspectives in measuring IT Balance Scorecard performance, namely: quality of information activities, application usability, IT division support, and information system integration. In particular, the usability of the application system proved to be an important element that influenced application performance. However, existing applications are generally criticized for providing inadequate quality information. The impact of this study will increase understanding of information technology performance measurement because the formation of a picture of the current measurement model that can be used to determine better implementation strategies in the future.

Keywords: application, IT balanced scorecard, IT Performance measurement, exploratory factor analysis, key performance indicator.

Paper ID #270

ENHANCING TOURISM INNOVATION THROUGH DISRUPTIVE TECHNOLOGY AND STRATEGIC ALLIANCES: EVIDENCE FROM POPULAR DESTINATIONS IN WEST JAVA

Okky Rizkia Yustian, Chyntia Ika Ratnapuri, Desi Indrawati

ABSTRACT

The tourism industry significantly contributes to Indonesia's economy, particularly in West Java, where it plays a crucial role in social interaction and preserving local culture. This study aims to explore the impact of disruptive technology and strategic alliances on tourism innovation in popular destinations in West Java, incorporating local cultural engagement as a moderator. Using a quantitative, explanatory survey design, the study involved a sample of 172 businesspersons from 310 popular destinations. The results reveal that disruptive technology has a substantial direct and indirect effect on tourism innovation, with a significant positive role as the mediator. Additionally, local cultural engagement significantly moderates the relationships between both disruptive technology and strategic alliances with tourism innovation. These findings imply that integrating local culture into strategic partnerships and technological advancements can enhance innovation in tourism, offering .

Keywords: tourism innovation, disruptive technology, strategic alliance, local cultural engagement, tourist destinations.

Paper ID #271

Comparison of the Performance of Transformer Text Summarization Models in Indonesian Language: PEGASUS and GPT-2

Ashri Shabrina Afrah, Muhammad Faisal, Abdul Aziz, Supriyono

ABSTRACT

Manual text summarization is impractical and time-consuming. Therefore, the development of automatic text summarizers has become an interesting topic in Natural Language Processing (NLP). Pre-trained models are often developed from Transformer models, such as PEGASUS and GPT-2. This research aims to evaluate the performance of Transformer models trained with Indonesian language datasets for text summarization tasks. The advancement of these models will support the increased utilization of Transformers for developing Indonesian language text summarizers, both for research and industry purposes. Evaluation of the models was conducted by using precision, recall, and f1-score. The impact of using these 2 pre-trained models on the evaluation results was measured using One-Way Analysis of Variance (One-Way ANOVA). Evaluation of the models shows that the GPT-2 model achieves the highest mean of precision, recall, and f1-score values, which are 0.893375, 0.9094735, and 0.901187 respectively. .

Keywords: text summarizer, PEGASUS, GPT-2, transformer.

Paper ID #272

Knowledge, Self-Efficacy, and Motivation Predictors of Phishing Resilience

Rochas Agus Onata, Vincent Vincent, Jason Cuvario, Agung Stefanus Kembau, Christian Haposan Pangaribuan and Emanuel Himawan Saptaputra

ABSTRACT

The research aims to analyze whether Procedural Knowledge, Conceptual Knowledge, Self-Efficacy, and Avoidance Motivation affect Avoidance Behavior or student behavior to avoid phishing when using BCA m-banking. The data collection method uses a quantitative approach and continues with the data analysis method using the Smart-PLS application. The sample consisted of 100 respondents using a purposive sampling technique, with the category of active students who live in Jakarta and its vicinities. Based on the results of statistical calculations in the Smart-PLS application, it was concluded that the Procedural Knowledge and Conceptual Knowledge variables had a significant and positive impact on Self-efficacy (an awareness or self-confidence to form a habit of avoiding phishing). Self-efficacy had a significant and positive impact on avoidance motivation, and avoidance motivation has a positive impact on shaping student behavior in avoiding phishing or avoidance behavior. Therefore, students must have the intention or confidence to learn phishing procedures and concepts to avoid phishing attacks. Recommendations for m-banking providers and policy makers are also offered.

Keywords: phishing, knowledge, efficacy, mobile banking, avoidance.

Paper ID #276

DDoS Detection Using Hybird Model in Machine Learning

Alex Sandro Ardian and Louwis Steffo Dermawan

ABSTRACT

Network security is facing major challenges due to the increasing frequency and complexity of Distributed Denial of Service (DDoS) attacks. These assaults is able to damage a company reputation causing financial losses, and disrupt services. The objective of this research is to improve DDoS attack prediction by developed a new model called LRTrees that combine Logistic Regression, Random Forest Classifier, and Extra Trees Classifier with the help of CSE-CIC-IDS2018 traffic dataset. Our results show that LRTrees outperforms all traditional machine learning models, achieving an amazing accuracy of 99.99% and because of the high level of accuracy, LRTrees are an effective model to detect DDoS attacks resulting in a higher chance on defending networks before significant harm occurs. The LRTrees model's success shows that it has the potential to be an important tool for cybersecurity because It provides a dependable and effective method to identify and stop DDoS attacks immediately, while improving network security in the process.

Keywords: DDoS, Hybrid Model, Logistic Regression, Random Forest, Extra Trees Classifier.

Paper ID #277

Usability Analysis and UI Improvements of Museum Nasional Website Using Heuristic Evaluation Methodology

Mei Sagala, Pratiwi Pandiangan, Rizal Firdaus, Riyan Leandros and Andika Hairuman

ABSTRACT

The National Museum of Indonesia (MNI) hosts collections in archaeology, history, ethnography, and geography. Its website serves as a key tool for publicizing museum-related information. This study aims to improve the website's usability by addressing menu navigation, information presentation, appearance, and wording through Heuristic Evaluation. This method assesses ten key aspects: system status visibility, real-world match, user control and freedom, consistency and standards, error prevention, recognition over recall, flexibility and efficiency, aesthetic and minimalist design, error recognition and recovery, and help and documentation. Initial evaluations using the System Usability Scale (SUS) yielded a poor usability score of 44 out of 100. Heuristic Evaluation highlighted issues in principles H1, H2, H3, H4, H6, H7, H8, and H10. Post-improvement, prototype evaluations showed successful UI/UX enhancements, reducing severity ratings to below 1 for all principles with testing provided valuable feedback in several key areas such as Enhanced Visual Appeal Users, Increased Accessibility of Key Information Feedback, and Positive Response to Call-to-Action (CTA) Redesign Users.

Keywords: Usability, Heuristic, Museum, SUS.

Paper ID #278

An Examination of the Possible Application of Artificial Intelligence Audit Process in Organizations

Wahyu Sardjono, Dewi sagita Pranata, and Muhammad Isamesal

ABSTRACT

This study investigates how artificial intelligence (AI) can transform audit processes, including how AI can be used in businesses to execute non-technical audit tasks and what effect this will have on those tasks. A qualitative case study methodology is used in the research design to give detailed insights into how AI is being adopted by businesses. This study aims to analyze the aspects that impact AI implementation from the viewpoints of managers, auditors, and other stakeholders. The findings show that artificial intelligence (AI) has a great deal of promise for non-technical audit procedures in businesses. AI can automate tedious jobs, evaluate large data sets to identify hazards and enhance teamwork and communication. These developments may lead to increased productivity, maybe better audit quality, and more effective processes. But there are still difficulties. Data quality is essential to the success of AI integration, and auditors may exhibit bias in favor of human professionals. Careful thought must also be given to ethical issues about transparency and possible job displacement. All things considered, this study adds significant knowledge to both the academic literature and real-world auditing applications. It improves our comprehension of the function of AI in the industry and provides useful information for people involved in information technology development, audit, and legislation.

Keywords: audit firm, Artificial Intelligence, effective, efficient.

Paper ID #280

IoT-Enabled Systems for Automated Cat Care: A Comprehensive Literature Review

Stephanie Angela, Jolin Tiomar, Justin Anthony Sudijanto, and Mochammad Haldi Widianto

ABSTRACT

In its connection, these abstract aims to introduce the paper by explaining how the innovation of IoT has changed pet care by performing feeding, health monitoring, and environmental control features that were proven problematic with conventional techniques. Thus, this literature review seeks to assess the existing literature and track the innovations on the subject of IoT applications in cat care. In the present investigation, by using a PubMed database search of recent articles, the study proves that IoT devices immeasurably improve cat care through telemetry and a distance interface. However, issues like privacy, security, and costs are still among some of the difficulties that organizations face. The results highlight the future possibilities of IoT in cat care and urge for the studies into avenues for the creation of improved secure and inexpensive solutions for the welfare of cats.

Keywords: IoT in Cat Care, Automated Feeding, Health Monitoring, Smart Pet Devices, Environmental Control.

Paper ID #281

IoT-Based Monitoring of Chili Plant Growth

Mas Rina Mustaffa and Norul Safinaz Norul Rizal

ABSTRACT

The Internet of Things (IoT) has the potential to revolutionize agriculture by enabling precise monitoring and control of environmental conditions. However, in certain areas, the application of IoT in agriculture is still limited, and beginner growers often lack the necessary knowledge to optimize chili plant growth. This project aims to address these issues by developing an IoT-based smart monitoring system for chili plants. The objectives are to assist users in real-time monitoring of plant growth and provide guidance for optimal cultivation practices. The methodology involves the integration of sensors (temperature, humidity, and soil moisture) connected to an Arduino (NodeMCU esp8266) to collect data, which is then transmitted to ThingSpeak and Firebase databases for real-time monitoring via a mobile application. User testing was conducted to evaluate the system's effectiveness. Results indicated that the system significantly improved users' ability to monitor and manage chili plant growth. The educational content within the application was found to be highly beneficial, and the interactive game feature enhanced user engagement. In conclusion, the IoT-based system successfully assists growers in optimizing chili plant cultivation and has the potential to be expanded to other crops, contributing to smarter agricultural practices.

Keywords: Agriculture, Chili Plant Monitoring, Internet of Things, Mobile Application, Smart Farming.

Paper ID #282

Networked Intelligence: The Mediating Impact of Social Network Applications on Organizational Learning and Knowledge Sharing in Indonesia

Maria Grace Herlina, Karto Iskandar, Ika Triana

ABSTRACT

Abstract— This study aims to establish the transformative power of Social Network Applications (SNA) on organisational learning and knowledge sharing within Indonesian organisations. This study conducted a quantitative business cross-sectional survey among 420 employees in Greater Jakarta for data collection. Partial least squares structural equation modeling results show that SNA significantly enhances organisational learning by improving employee communications, collaboration, and information exchange. It is identified that social capital plays a vital mediating role in facilitating the adoption and practical usage of SNAs. The results emphasise that organisations should build strong interpersonal relationships and trust to maximise the benefits of digital tools like SNA. This study enriches the theoretical understanding of social capital and technology adoption. It helps offer practical guidelines to organisations on leveraging SNAs in a manner that brings better learning outcomes and competitive advantage. It also discusses the study's limitations and future research directions.

Keywords: Keywords – Social Network Applications, Organizational Learning, Knowledge Sharing, Social Capital, Empirical Study.

Paper ID #291

Improving Helpdesk Chatbot Performance using Levenshtein Distance and N-gram Similarity

Gede Herdian Setiawan, Made Doddy Adi Pranatha, I Made Budi Adnyana, Komang Budiarta

ABSTRACT

The development of NLP-based chatbots faces challenges in understanding user queries and statements, especially when queries contain misspellings or use different synonyms. Previous research has implemented NLP algorithms such as Cosine Similarity to understand user query inputs. However, this algorithm has the weakness of only considering the presence of words in the text, not the frequency or weight of words. This study proposes a solution to overcome the weakness of Cosine Similarity by implementing the N-gram Similarity algorithm. This algorithm focuses on matching word or character sequences (n-grams) between two texts, thus paying more attention to semantic similarity. In addition, this study also proposes the application of the Levenshtein Distance algorithm to recognize and correct spelling errors in user query inputs. This algorithm measures the edit distance between two strings to find the word in the dictionary with the least edit distance. Testing of the Levenshtein Distance algorithm shows satisfactory results with an accuracy rate of 87.5%. This indicates that the algorithm works well in correcting word spelling errors. Overall performance tests indicate a chatbot capability improvement of up to 91.8%.

Keywords: NLP, Chatbot, Levenshtein Distance, String Simlarity.

Paper ID #292

Implementation of Adaptive Neuro-Fuzzy Inference System (ANFIS) Algorithm for Customer Credit Prediction

Edy Victor Haryanto S, Nita Sari S, Mikha Dayan Sinaga, Noprita Elisabeth Sianturi

ABSTRACT

Credit policies in the sales process are one of the supplier's most powerful tools for controlling demand, increasing sales and promoting commodities. Any supply chain member wishing to buy will receive full or partial trade credit based on strong decision-making rights. The problem that often occurs is the large number of bad loans that can disrupt the economic cycle. This problem has also resulted in many finance companies experiencing difficulties in processing customer loans. This problem can be prevented by applying artificial intelligence to predict which customers will take credit. Predictions will be made using the ANFIS method. Adaptive neuro-fuzzy inference system (ANFIS) methods deal with uncertainty in predictions and have been widely applied in various research contexts including medical systems, image processing, electrical systems, and so on. We chose this methodology because it has mostly proven to perform well for modeling complex data sets. The study used 200 customer data taken from a finance company, the data collected is customer data that can pay on time and customer data that cannot pay on time. The main novelty of this research lies in the application of a hybrid model that combines neural networks and fuzzy inference systems to predict credit risk. Most existing models use standard techniques such as logistic regression or decision tree-based models. By using ANFIS, which combines the ability of neural networks to handle non-linear relationships and fuzzy logic to model uncertainty, this research brings a new, more complex and more accurate approach to credit assessment. The results obtained from this study were as much as 80.5% of the data according to or valid with the predictions made using the ANFIS method. This proves that the model applied to the ANFIS method can be used to predict customer credit in the future.

Keywords: ANFIS, Credit Payment, Credit Risk, Neural Network, Forecast.

Paper ID #295

Implementing Robotic Arm for Efficient and Reliable Water Quality Monitoring in Aquaculture

Iska Hazma Mulyadi, Muhammad Ikhsan Nurasid, Billy Christiandinata, Annisa Istiqomah Arrahmah, Rissa Rahmania

ABSTRACT

This study introduces an IoT-enabled robotic arm system designed to improve water quality monitoring in aquaculture. The main goal is to automate the process and enhance the reliability and efficiency of monitoring critical parameters—pH, temperature, and Total Dissolved Solids (TDS)—which are essential for maintaining fish health and sustainability in aquaculture settings. Utilizing a pH sensor, temperature sensor, and TDS sensor, the system integrates with AWS Cloud to facilitate real-time data monitoring accessible on smartphones. The robotic arm selectively immerses the pH sensor, addressing concerns about longevity by reducing continuous exposure to water, while the other sensors remain submerged for consistent readings. Testing was carried out in a controlled fishpond environment, revealing an average daily pH of 8.66, a temperature of 25.22°C, and a TDS level of 268.74 ppm, all demonstrating high measurement precision and consistency. A comparative analysis with manual readings indicated that the robotic arm produces more stable and reliable measurements, highlighting its potential for scalable application in aquaculture management. This innovative approach effectively combines IoT technology with robotic automation, significantly enhancing aquaculture productivity by ensuring optimal water quality.

Keywords: robotic arms, water quality monitoring, Internet of Things (IoT), real-time monitoring.

Paper ID #298

Application of BERT Modeling in Hadith Category: A Study of NLP on Sohih Bukhori and Muslims

Ahmad Hashim Asy'Ari, Mohammad Haris Muzakki, Muh Hanafi, Akhmad Dahlan, Muhamad Yusuf and Hasnatul Hidayah

ABSTRACT

Many problems arise in the study of hadith that are trending in the field of study. These issues vary from the digitization of hadith data to proper case studies regarding the approximate narrator chain of a particular hadith. However, in this paper, we do not concentrate on learning to estimate, justify, or authenticate a hadith. The focus of this research is more on the use of data mining on hadith datasets. We put the hadith dataset into one of the machine learning tools, which is text classification. This hadith dataset was used in an experiment for textual classification of hadith, which is based on the likelihood of the number of words appearing in the hadith text. This study aims to apply BERT modeling in the classification of hadith from the book Sohih Bukhori and Muslim. By using NLP techniques, this study will explore the possibility of applying the BERT model in classifying these hadiths. It is hoped that the results of this study can contribute to the development of more sophisticated and accurate text analysis methods.

Keywords: Hadith, BERT Modeling, NLP, Bukhori, Muslim.

Paper ID #302

Topic Modelling Analysis on Indonesian News Using BERT Topic Model

Hanafi Hanafi, Muhammad Fuat Asnawi, Nanang Fitria Kurniawan, Adi Suwondo, Anas Nasrullah and Chendri Irawan Satrio Nugroho

ABSTRACT

This study applies the BERTopic model to an Indonesian news corpus from December 2015 to identify and analyze main topics discussed in the news, comparing the results with those from the Latent Dirichlet Allocation (LDA) method. The research demonstrates BERTopic's effectiveness in generating coherent and interpretable topics by leveraging BERT embeddings and clustering algorithms, significantly outperforming traditional LDA, especially with short and unstructured text data. By examining news articles from major Indonesian websites, the study reveals key issues and trends, providing valuable insights for researchers, journalists, and policymakers to better understand the dynamics of news coverage and public discourse in Indonesia. The results underscore the importance of selecting appropriate topic modeling techniques based on data characteristics, with BERTopic offering substantial improvements in thematic analysis.

Keywords: BER Topic Model, Indonesian News Corpus, Topic Analysis, LDA.

Paper ID #303

Enhancing the Security of DoT Block Cipher Against Differential Cryptanalysis

Dian Yuda Paripurna and Yusuf Kurniawan

ABSTRACT

The growing incidence of data breaches has made data protection a critical priority for many organizations. Cryptography has emerged as a key solution to this issue. One of the latest cryptographic block cipher algorithms developed is DoT. However, DoT has been proven to be vulnerable to differential cryptanalysis attacks. We conducted modifications to the DoT algorithm to enhance its resistance to such attacks. The modifications focused on the permutation structure of DoT, using existing permutation components. We then evaluated the modified versions by performing differential cryptanalysis attacks on them. One of these modifications successfully increased DoT's security, achieving an attack success probability of less than 2^-128.

Keywords: block cipher, cryptography, cryptanalysis, security, modification..

Paper ID #304

Classification of Chili Varieties using Convolutional Neural Network Model

Abdul Haris Rangkuti

ABSTRACT

The diversity of chili types poses a challenge in accurately identifying chili varieties, hindering the selection of superior varieties by farmers and industry. To address this issue, our research focuses on leveraging machine learning, specifically Convolutional Neural Network (CNN) models, to classify visual images of chili varieties. We collected a dataset comprising 13 classes with a total of 1835 images, representing various species and varieties of chili. The dataset was divided into 70% for training, 20% for validation, and 10% for testing. The training process involved the use of deep learning with several CNN models to evaluate their effectiveness in accurately classifying chili varieties based on visual characteristics. Through refining the model architecture and parameters, our aim is to achieve a classification accuracy above 0.9, demonstrating the potential of CNN in overcoming current challenges in chili variety identification. In the training data experiment, models such as ResNet 50V2, NasNetMobileV2, Densenet169, MobileNetV2, Xception, and InceptionV3 demonstrated accuracy, precision, and recall of more than 92%. Subsequently, during testing data processing, the highest accuracy was achieved by the DenseNet 169 model at 95%, followed by MobileNetV2 at 95.9%, Xception at 94.3%, and InceptionV3 at 91.3%. Overall, our research has successfully classified 13 different varieties of chili peppers. However, further research is warranted to address more diverse image characteristics in other types of images.

Keywords: Chili, Classification, Convolutional Neural Network, Image, Machine Learning, Computer Vision.

Paper ID #305

Electrical Appliance Identification through Signal Processing of Electrical Wave Signal: A CNN-Based Approach

Red Alistaire Cruz, Ryan Kyle Enriquez, Glenn Magwili

ABSTRACT

The escalating global energy demand, driven by population growth and technological advancements, underscores the need for effective energy management strategies, particularly in residential settings where electrical appliances dominate power consumption. Current methods, relying on kWh meters, often fail to provide nuanced insights into individual appliance usage, prompting the exploration of innovative approaches for appliance identification. This research investigates the application of Convolutional Neural Networks (CNNs) for household appliance identification based on electrical signatures. The study begins with a comprehensive literature review, exploring appliance recognition algorithms, convolutional neural networks, device identification methods, visual signatures, spectrogram analysis, and current sensors. The methodology chapter outlines a systematic approach, including the conceptual framework, system process flow, experimental setup, program development, data collection, CNN model training, and performance evaluation. Spectrograms are generated from wave signals of the five appliances namely: electric kettle, Air-Conditioning Unit, Rice Cooker, Electric Fan, and Light. CNN program is utilized to train and test appliances based on spectrogram. The final testing phase assesses the program's ability to accurately identify appliances using appliances that were not on the initial list. The result shows that the three-appliance identification was more accurate than the four and five appliance identification, with a model loss of 0.000481 and 1.0, a model loss of 0.1422 and an accuracy of 0.9297, and a model loss of 1.4150 and 0.5409 respectively.

Keywords: appliance recognition, CNN signal processing, spectrogram analysis, household appliance identification.

Paper ID #310

A Comprehensive Survey of Infant Cry Classification Research trends and methods: A Systematic Review

Nuk Ghurroh Setyoningrum, Ema Utami, Kusrini Kusrini and Ferry Wahyu Wibowo

ABSTRACT

The study delves into the vital domain of infant cry categorization within the realm of pediatric healthcare technology advancement. Through an exhaustive systematic review, we scrutinize the prevailing trends and methodologies in infant cry classification research. By meticulously examining pertinent literature, we unveil a plethora of approaches aimed at classifying infant cries based on their acoustic attributes. The study traces the evolution of classification techniques, transitioning from traditional methods to contemporary artificial intelligence-based strategies like artificial neural networks and machine learning. Additionally, we shed light on recent advancements in data gathering and analysis, encompassing the utilization of extensive datasets and innovative feature extraction methodologies. Nonetheless, the review underscores the persistent challenges encountered in this field, such as the absence of standardized datasets and the intricacies associated with deciphering distinct infant vocal signals. These findings underscore the imperative for a cohesive approach and sustained exploration to enhance infant cry classification methodologies, thereby facilitating early diagnosis and more efficacious pediatric healthcare interventions.

Keywords: infant cry, baby cry, infant cry classification, baby cry recognition, infant cry detection.

Paper ID #311

deESco-RC: Electric Scooter for Wheelchair with Remote Control

Laurentius Kuncoro Probo Saputra , Dechrit Maneetham , Tenzin Rabgyal

ABSTRACT

Electric wheelchairs are a prevalent form of assistive technology that improves the mobility of disabilities people. This research proposed the development of an electric scooter for conventional wheelchairs. The electric scooter is designed for sharing purposes, so it is not made to blend with the wheelchair but can be detached. Additionally, this study implemented a steering and velocity control controller to provide remotely controlled via application, further advancing the functionality and accessibility of electric-powered wheelchair devices. Results show that the PID and PI controllers perform well, though the joystick's low resolution causes user discomfort. The Android application provides better control, and all users complete test scenarios successfully. The study could be improved to make the scooter as an intelligent autonomous vehicle.

Keywords: detachable electric scooter, steering control, wheelchair, wheelchair remote control, velocity control.

Paper ID #316

Transforming Financial Services with Decentralized Finance and Blockchain Technology

Arisyi Yusran, Marviola Hardini, Ihsan Nuril Hikam, Po Abas Sunarya, Untung Rahardja

ABSTRACT

In the era of rapid digital transformation, the financial services sector is being redefined by the integration of Decentralized Finance (DeFi) and Blockchain Technology. These technologies promise to enhance transparency, security, and operational efficiency within financial systems, aligning with the global push towards innovative and sustainable financial solutions. This study investigates the transformative potential of DeFi and Blockchain Technology within traditional financial institutions, focusing on how these technologies can overcome existing inefficiencies and provide new opportunities for growth. Employing Structural Equation Modeling (SEM) using SmartPLS, the research evaluates the impact of Blockchain's core attributes such as immutability, decentralization, and automation via smart contracts on the adoption of DeFi. The results demonstrate a significant positive relationship between the perceived advantages of Blockchain and the readiness of financial institutions to implement DeFi solutions. Additionally, this study discusses the critical challenges, including regulatory hurdles and the need for technological scalability, which must be addressed to enable broader adoption. The findings contribute to the discourse on the future of financial services, offering actionable insights for industry practitioners and policymakers seeking to harness the power of DeFi and Blockchain for sustainable economic development.

Keywords: Decentralized Finance, Financial Transformation, SEM, Trust.

Paper ID #317

Scalability and Security Challenges of Cloud Computing in the Banking Industry

Eta Pradivta, Fitra Putri Oganda, Elang Tito Persada, Henderi and Untung Rahardja

ABSTRACT

The rapid adoption of cloud computing has significantly transformed the banking industry, driving operational efficiency, cost reduction, and scalability. However, these benefits come with critical challenges, especially regarding scalability and security. Addressing a gap in understanding the nuanced relationships among these factors, this study explores the influences of operational efficiency, security concerns, and regulatory compliance on cloud infrastructure scalability within the banking sector. Grounded in the Technology Acceptance Model (TAM), data were collected from IT professionals and decision-makers across banking institutions and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM), chosen for its capacity to handle complex variable interactions. Findings indicate that operational efficiency positively impacts scalability, while security concerns show a nuanced influence that varies by context. Additionally, regulatory compliance enhances scalability, though its moderating effect on security concerns suggests a need for further exploration. These insights offer actionable guidance for banks of various sizes, informing a more strategic approach to cloud adoption and management.

Keywords: Cloud Computing, Banking Industry, Scalability, Security, Regulatory Compliance.

Paper ID #319

Innovative Mobile Banking Solutions Powered by 5G: Ensuring Security and Seamless Connectivity

Ferry Ariyanto, Nuke Puji Lestari Santoso, Muhammad Farhan Kamil, Untung Raharja

ABSTRACT

The advent of 5G technology is revolutionizing mobile banking, offering unprecedented opportunities for enhancing security and connectivity. This research explores the development of innovative mobile banking solutions powered by 5G, focusing on ensuring robust security measures and seamless connectivity. The study aims to address the increasing demand for secure, fast, and reliable mobile banking services in a digital-first world. By employing a mixed-methods approach, including qualitative interviews with industry experts and quantitative surveys of mobile banking users, the research identifies key challenges and proposes actionable strategies for leveraging 5G technology in mobile banking. The findings reveal that 5G can significantly mitigate security risks and improve user experience by providing higher data transfer rates and lower latency. The study concludes that integrating 5G into mobile banking solutions is essential for staying competitive in the financial services industry, offering both theoretical insights and practical recommendations for industry stakeholders.

Keywords: 5G Technology, Mobile Banking, Security, Seamless Connectivity, Digital Transformation.

Paper ID #320

A Review of Sentiment Analysis of Customer Reviews of Kopi Kenangan App: A Case Study on Customer Experience Improvement Approach

Putu Ayu Devika Santini Vigneswari, Humaira Princess, Ivan Diryana Sudirman

ABSTRACT

This study aims to conduct sentiment analysis on customer reviews on the Kopi Kenangan application as a case study in an effort to improve customer experience. Sentiment analysis is the process of extracting subjective information from text data to determine the polarity of sentiment, whether positive, negative, or neutral. In this study, we use a machine learning approach with an auto-model system to classify customer review sentiment. Customer review data is collected from various online sources and manually labeled for use as training data. We compare the performance of several classification models, such as Naive Bayes, Support Vector Machines (SVM), and Logistic Regression, and optimize the parameters to obtain the best results. The ranking of the best system classification will be analyzed and interpreted to provide insight into customer sentiment towards the Kopi Kenangan application. The results of this study can help management identify areas that need improvement and make strategic decisions to improve the overall customer experience.

Keywords: sentiment analysis, customer reviews, machine learning, customer experience, memory copy, text classification, automatic models, naive bayes, support vector machines (SVM), classification ranking.

Paper ID #323

Open-Source Control System Platform for a 5-Axis Robot Using PID and IoT

Martinus Bagus Wicaksono, Dechrit Maneetham, Petrus Sutyasadi

ABSTRACT

Technological progress has brought about a revolution in several sectors by integrating automation, especially robots, to improve production efficiency. The 5-axis articulated robot is a popular option in the industry because to its exceptional flexibility and accuracy in managing intricate manufacturing processes, setting it apart from other robot kinds. However, creating control systems for these robots often requires costly hardware and software, which presents difficulties for academic institutions and small-scale researchers. Accessible and reasonably priced parts, such microcontrollers, are used to solve this problem. This work provides an open-source control system platform that combines Internet of Things (IoT) technologies with PID (Proportional-Integral-Derivative) control for a 5-axis articulated robot. The platform provides an adaptable, effective, and reasonably priced control solution by using the capabilities of Arduino microcontrollers. A detailed description is given of the system's architecture and implementation, which includes the hardware setup, software architecture, and the integration of PID control and IoT. This interface reduces setup time and enables remote access over the Internet of Things, according to testing. This open-source technology promotes wider acceptance and flexibility in educational and industrial robotics, possibly enhancing the practical training of robotics students. All code is freely available online.

Keywords: PID control, IoT, Open-source control system, Embedded system, Arduino microcontrollers, 5-axis articulated robot, Low-cost robot.

Paper ID #324

Adoption of Various Topic Modelling Algorithm to Analysis Indonesian Tourism Customer Feed Back

Muh Hanafi, Icha Nura Nugraha and Nanang Fitria Kurniawan

ABSTRACT

The creative economy and tourism industry are significant sources of foreign exchange and major contributors to a country's gross domestic product (GDP). This study evaluates trends in the creative economy and tourism industry using topic modeling approaches, namely Latent Dirichlet Allocation (LDA), Latent Semantic Analysis (LSA), and BERTopic. Data were collected from the Twitter platform using API and analyzed with preprocessing steps including tokenization, stemming, and lemmatization. Model evaluation was performed based on topic coherence metrics (UMass, UCI, and Cv) and processing time The results show that LDA and LSA have high stability and consistency in generating coherent topics, while BERTopic has great potential but requires further calibration to achieve comparable stability. This study provides insights into the most effective topic models for analyzing trends in the creative economy and tourism industry, as well as providing recommendations for future research.

Keywords: Creative economy, Tourism industry, Topic model, LDA, LSA, BERTopic, Topic coherence.

Paper ID #325

Classification of Lung and Colon Cancer using a Hybrid CNN Model

Amal O. Hasan, Zakariya A. Oraibi

ABSTRACT

One of the most dangerous diseases that people suffer from is Lung and Colon cancer. The huge number of fatalities caused by this disease forced doctors to adopt advanced methods to help them diagnose it early. In this paper, a technique based on machine learning is introduced to accelerate the process of Lung and Colon detection. The proposed method consists of using two state-of-the-art architectures called: Xception and MobileNet. First, we extract their feature maps and concatenate them. Second, we train the concatenated model from scratch. Finally, softmax layer is used to perform the classification task on Lung and Colon cancer images. This hybrid technique is applied on a challenging dataset called: LC25000 which consists of five classes with 5000 images per class. In the experiments, our proposed method achieved 99.37% accuracy which outperforms state-of-the-art methods. As a result, the new model can be used in clinics to help doctors.

Keywords: Deep Learning, Colon Cancer, Lung, Hybrid Models, Xception, MobileNet.

Paper ID #326

Driven Multivariate Regression - Feature Engineering with Random Forest and XGBoost for Accurate Weather Prediction

Nur Alamsyah, Budiman Budiman, Venia Restreva Danestiara, Imannudin Akbar, Arnold Ropen Sinaga and Reni Nursyanti

ABSTRACT

Fluctuations in weather conditions present a significant challenge for accurate prediction, particularly when considering multiple interdependent variables such as temperature and precipitation. To address this issue, this study proposes a multivariate regression approach driven by advanced feature engineering techniques. Specifically, we employed Random Forest and XGBoost models, leveraging temporal, interaction, and lag features to enhance the predictive accuracy. The proposed method was evaluated using a real-world weather dataset, where both models demonstrated substantial improvements in prediction performance. The Random Forest model achieved a Mean Squared Error (MSE) of 0.059 for temperature and 0.019 for precipitation, with an R-squared (R^2) of 0.995 and 0.999, respectively. Similarly, the XGBoost model yielded an MSE of 0.043 for temperature and 1.826 for precipitation, with an R^2 of 0.996 and 0.983. These results underscore the effectiveness of the feature engineering process combined with robust multivariate regression models, offering a promising approach for accurate weather prediction.

Keywords: Feature Engineering, Multivariate Regression, Weather Prediction.

Paper ID #331

Input Representation on Text Data for E-Commerce Product Review Summarization using Graph Convolutional Network

Azani Cempaka Sari, Yaya Heryadi, Iman Herwidiana Kartowisastro, Widodo Budiharto

ABSTRACT

This paper investigates recent advancements and methodologies in Automatic Text Summarization, a field that has garnered significant attention for its ability to condense lengthy documents into concise summaries while preserving key information and themes. The study examines the development of Automatic Text Summarization models, including both extractive and abstractive approaches. Additionally, the research delves into the use of graph convolutional networks for text representation in e-commerce product review summarization. The study employs an e-commerce dataset in conjunction with a graph convolutional network model, covering stages from preprocessing and tokenization to constructing graph-based data representation. The expected outcome is a graph-structured representation of input text data derived from Indonesian-language e-commerce product reviews. .

Keywords: Text, Summarization, E-commerce, Product, Review, Graph, Convolutional, Network .

Paper ID #343

Systematic Literature Review on Deep Learning for Weather Phenomenon Classification

Uswatun Hasanah and Chuan-Ming Liu

ABSTRACT

Nowadays, weather image classification is very important, it can help many sectors, such as daily weather forecasting, disaster control, agriculture, aviation, etc. Deep learning has emerged as an effective method for image classification, providing significant increases in efficiency and accuracy. This study presents a thorough examination of the application of deep learning in weather image classification, with an emphasis on methodology, challenges, and future works. The PRISMA approach was used to systematically search and filter 25377 publications (2018-2024) from IEEE, Elsevier, Springer, Wiley Library, and MDPI. The result was a selection of 16 important studies that showcase cutting-edge methodologies and the effectiveness of those measures. Our goal is to present a comprehensive overview of how deep learning methods have improved weather prediction while identifying potential topics for future research.

Keywords: Weather phenomena, image classification, deep learning, climate prediction.

Paper ID #344

Influence of Information Quality by Recommendation System on Purchase Intention mediated by Perceived Ease of Use and Perceived Usefulness

Kusumah Arif Prihatna, Agung Hari Sasongko, Hariyatno, Erland Barlian

ABSTRACT

Social media has become crucial in influencing consumer behavior, especially among Gen-Z, who are its frequent users. This study investigates the impact of information quality by recommendation system on purchase intention, with the mediating roles of perceived ease of use and perceived usefulness, which are the main constructs of the Technology Acceptance Model (TAM). While previous studies have examined the direct effects of information quality, perceived ease of use, and perceived usefulness on purchase intention, there has been no research on the mediating role of both perceived ease of use and perceived usefulness on the relationship between information quality by recommendation system and purchase intention. This study uses a quantitative approach, collecting data from 232 active Gen-Z social media users in Jakarta, Indonesia. The results of this study indicate that information quality by recommendation system has a significant and positive effect on purchase intention, and this effect is strengthened by the mediating factors of perceived ease of use and perceived usefulness. These findings aim to provide insights for marketers and platform developers who are trying to improve the effectiveness of information quality by social media recommendations to increase Gen-Z's purchase intention.

Keywords: information quality by recommendation system, purchase intention, perceived ease of use, perceived usefulness, social media, gen-z.

Paper ID #351

A Survey On Indonesian Hoax Analyzer and Fake News Detection Using Deep Learning Techniques

Jonathan Tobby Laimeheriwa, Wiwi Oktriani, Irene Anindaputri Iswanto and Muhammad Fadlan Hidayat

ABSTRACT

In today's digital world, where people consume information quickly through social media like Facebook, Instagram, and Twitter, there's a growing concern about fake news. It's crucial to know whether information and its sources are reliable, especially as people may disregard real news if it doesn't align with their beliefs. This survey aims to explore the landscape of fake news in the context of Indonesia, focusing on the development and implementation of hoax analyzers and fake news detection using deep learning techniques. Our review shows that deep learning models such as Convolutional Neural Networks (CNNs), Recurrent Neural Networks (RNNs), and Transformer models like IndoBERT have demonstrated effectiveness in identifying misinformation within Indonesian content, with promising accuracy and efficiency metrics. However, challenges persist, including the need for extensive data, computational resources, and tailored approaches to handle Indonesian language complexities. This survey highlights the importance of advancing these detection systems to help reduce the spread of misinformation and support informed decision-making in Indonesian society.

Keywords: fake news, hoax analyzer, detection, deep learning, survey.

Paper ID #353

Transforming Fashion Marketplaces: A Design Thinking Approach to AR and AI Integration

Carola Basuki , Chairani Putri Pratiwi, Akbar Zaidan Rohman, Hasyid Fitra Hasaini, Leandro Nardphine Halomoan, Ricardo Cuthbert, Verdhinan Hendranata

ABSTRACT

In the rapidly evolving landscape of fashion e-commerce, the integration of Augmented Reality (AR) and Artificial Intelligence (AI) opens new horizons for enhancing consumer experiences and empowering fashion brands. This study explores a design thinking-driven approach that leverages AR and AI technologies to transform online fashion marketplaces. AR and AI-driven fashion marketplaces present an innovative solution to address persistent challenges such as size discrepancies, visualization limitations, and lack of customization options. The marketplace offers consumers a more immersive, interactive, and personalized shopping experience by incorporating these technologies. The findings reveal that this integration not only boosts brand awareness but also significantly enhances customer engagement, streamlines the decision-making process, and drives higher conversion rates for fashion brands. The study underscores the potential of AR and AI to revolutionize how fashion is experienced online, ultimately benefiting both consumers and brands through increased satisfaction and operational efficiency. The findings provide valuable insights for fashion brands seeking to enhance customer experiences and drive business growth through the strategic integration of AR and AI technologies. The contribution of study as guide future investigations into the long-term effects and practical applications of AR and AI in online fashion.

Keywords: design thinking, augmented reality, artificial intelligence, fashion marketplace, brand awareness.

Paper ID #355

Exploring the Efficiency of Various GNN Architectures for Node Classification in Social Networks

Maulin Nasari, Alfi Yusrotis Zakiyyah

ABSTRACT

Node classification is a crucial task in many applications, where the objective is to accurately classify nodes based on their features. Unlike traditional machine learning methods, which often fall short in handling graph-structured data, Graph Neural Networks (GNNs) offer a robust solution to this problem. This research aims to identify the most effective GNN model for node classification by evaluating several methods, including Graph Convolutional Networks (GCN), GraphSAGE, Graph Attention Networks (GAT), and ChebNet. Through careful tuning of key hyperparameters, specifically the number of hidden units per layer and the learning rate, the study achieved optimal model performance. The best results were obtained using the GraphSAGE model with 64 hidden units per layer and a learning rate of 0.01, leading to exceptional accuracy and F1 scores of 0.999823 and 0.999852, respectively. These findings demonstrate the effectiveness of hyperparameter optimization in enhancing GNN performance for node classification tasks.

Keywords: Node classification, GNN, GCN, GraphSAGE, GAT, ChebNet.

Paper ID #358

Campus Parking System using YOLOv5 Object Detection Method

Marchel T. Tombeng; Josua Limbu; Vito Korengkeng

ABSTRACT

Currently, there is an increase in the number of vehicles used in office environments, hotels, and educational institutions, including on the Universitas Klabat campus. However, the lack of an adequate system for managing parking indicates the need for the development of a better and more efficient parking infrastructure to address this problem. Campus Parking System Using YOLOv5 Object Detection Method implemented with Number Plate Recognition is one solution that can be applied in campus environments, offices, hotels, and other commercial areas. This system works by identifying vehicles that have a parking permit at a specific location. Researchers utilize YOLOv5 for Object Detection and Tesseract for Optical Character Recognition. This research uses the Prototype method to test the functionality of the system. The License Plate Recognition System detects and automatically reads vehicle license plates from digital images, converts pixel data into ASCII text, which is then processed in the database. In addition, the system also helps distinguish between vehicles that are allowed to park and those that are not. By implementing this technology, parking management in various environments can become more efficient and structured.

Keywords: Number Plate Recognition, Optical Character Recognition, Deep Learning, Parking System, YOLOv5.

Paper ID #359

Applying Multimodal Deep Learning for Identifying Mental Health Indicators in Instagram Content

Putri Dhea Marsella, Nur Dina Lessy, Syekh Budi Syam, Rachel Ovelia Kadang, Sulaiman Hamzah, Muh Fadhil Rahmatullah, Wilem Musu.

ABSTRACT

This study explores the application of multimodal deep learning to identify mental health indicators within Instagram content. Leveraging the unique combination of images, captions, and hashtags on Instagram, the research addresses a significant gap in current mental health detection methods that typically rely on single data modalities. A deep learning model was developed to integrate visual and textual features through advanced multimodal fusion techniques. The model was trained and evaluated on a dataset of Instagram posts, achieving an overall accuracy of 69%. The results highlight the model's effectiveness in identifying posts related to mental health issues, particularly those that are "Teridentifikasi." However, the model also revealed challenges in precisely identifying "Tidak Teridentifikasi" posts, indicating areas for future refinement. This research contributes to the field by advancing the understanding of multimodal content in social media and its implications for mental health detection, offering a more comprehensive and nuanced approach compared to traditional methods. The findings have the potential to inform future developments in computational social science and mental health assessment tools.

Keywords: Multimodal Deep Learning, Mental Health Detection, Instagram, Social Media Analysis, Machine Learning, Computational Social Science.

Paper ID #360

Thailand Food Price Forecasting: Comparative Analysis of Machine Learning Models

Julaluk Watthananon, Prapas Thongrak, Yamin Thwe, Navarat Saekhow

ABSTRACT

This study aims to address food price fraud and predict pricing trends for key commodities—Cassava flour, Maize, Meat (chicken), and Rice—in Thailand, using advanced machine learning techniques to enhance forecasting accuracy and detect anomalies. We utilized historical food price data from 2000 to 2020 and incorporated USD exchange rate fluctuations to build and evaluate several regression models, including Linear Regression, Decision Tree Regressor, Random Forest Regressor, Gradient Boosting Regressor, and Support Vector Regressor. The Decision Tree and Random Forest models demonstrated superior performance with the lowest mean squared error (MSE) and root mean squared error (RMSE), effectively capturing price trends and fluctuations. In contrast, Linear Regression and Support Vector Regressor showed higher errors and less effectiveness in handling non-linear patterns. This study highlights the efficacy of machine learning in improving price prediction accuracy and detecting potential fraud, offering a robust framework for analyzing commodity pricing dynamics. The findings provide actionable insights for policymakers and stakeholders to implement proactive strategies, promoting greater market stability and fairness in Thailand's agricultural sector.

Keywords: Food Price Fraud, Machine Learning, Commodity Price Prediction, Regression Models, Exchange Rate Impact.

Paper ID #363

Ideation And Simulation Roles In Identifying Functional Requirements Of A Multi-Organizational Digital Library Platform

Febrianta Surya Nugraha, Widiyanto Hadi and Muhammad Setiyawan

ABSTRACT

New innovations in systems often pose challenges in identifying users' functional needs, particularly when system analyses fall short. The rise in focus on user experience further complicates this process. The concept of a multi-organization digital library platform—integrating multiple organizations into one system—exemplifies this challenge. This study employs an ideation approach to gather user perspectives on functional needs, focusing on understanding users' needs, desires, and challenges with new features. The research follows a three-stage ideation process: Empathize, Define, and Ideate. The Empathize stage involves creating user personas and simulating system features to capture user challenges and expectations. The Define stage synthesizes these insights into specific problems, and the Ideate stage generates potential solutions to address them. The findings demonstrate that ideation effectively refines functional requirements by identifying challenges and user needs that may not be apparent in existing systems. Key challenges, such as managing a large number of members and libraries, are addressed through solutions like CSV uploads, data management checklists, and hierarchical admin structures. The study also highlights the value of simulation in helping users conceptualize new system features. Future research should explore further applications of simulation in identifying user needs for innovative systems.

Keywords: Digital Library, Functional Requirements, Ideation, Multi-Organization.

Paper ID #364

Comparison of K-means, Gaussian Mixture, and Hierarchical Clustering Models On Countries's Economic Freedom Index

Nicholas Axel Tanujaya, Jose Gabriel Thendito, Marcell Risandi Putra, Fernando Barina, Owen Kartolo, Karli Eka Setiawan, Alfi Yusrotis Zakiyyah

ABSTRACT

Economic freedom scores can be used as a measure to assess prosperity and opportunity. This article provides a clustering analysis of the countries based on the Economic Freedom Index data published by the Heritage Foundation. K-means, gaussian mixture model, and hierarchical clustering are used. The research objective is to find an appropriate number of clusters as a hyperparameter for the methods. Then, for identifying a good clustering method for clustering the countries. We use scaling and PCA for dimensionality reduction for preprocessing the data. The resulting best clustering method among those used is the gaussian mixture model, with three resulting clusters. This grouping seems inline when compared to the overall score quartiles of the data. The two other two methods used, k-means and hierarchical cluster analysis, also generally group the data properly, with four and two clusters respectively. However, there are noticeable anomalies when compared to the quartiles of overall score.

Keywords: clustering, cluster, gaussian mixture, k-means, hierarchical cluster analysis.

Paper ID #365

Effectiveness of Random Search in Enhancing CNN Performance for Rice Plant Disease Classification

Tinuk Agustin

ABSTRACT

Problems in the classification of plant diseases are often caused by difficulties in determining optimal hyperparameters, which can affect the accuracy and generalization ability of the model. This study aims to explore the influence of hyperparameter variations, especially the number of units, dropout rate, and learning rate, and compare the effectiveness of manual optimization methods with Random Search. Experiments are conducted on MobileNetV2-based CNN models using the Rice Plant Disease (RPD) dataset, which consists of 3698 images of rice leaf diseases classified into 10 categories, including fungal, bacterial, and virus infections. Random Search is applied to find optimal combinations. The results showed that settings with low dropouts and small learning rates, such as 0.001, resulted in higher accuracy. Random Search shows superior performance with an accuracy of 97.84% and significantly reduces validation losses, especially with longer training durations. These findings underscore the importance of the proper selection of hyperparameters and the effectiveness of Random Search in finding the optimal configuration for the CNN model.

Keywords: Hyperparameter Optimization, Random Search, CNN Performance, Rice Plant Disease Classification.

Paper ID #366

AI-Powered Steganographic Techniques: A Comparison of Traditional Methods and Modern Machine Learning Approaches

Indrawan Ady Saputro, Moch. Hari Purwidiantoro, Febrianta Surya Nugraha, Ina Sholihah Widiati, Sri Widiyanti

ABSTRACT

Steganography is pivotal for covertly embedding sensitive data in digital media to evade unauthorized detection. Traditional methods like LSB substitution and DCT are increasingly susceptible to detection due to evolving analysis and detection technologies. In contrast, AI-driven approaches such as CNNs and GANs offer significant advancements in steganography by enhancing data concealment and detection resilience. This study comprehensively compares traditional techniques (LSB, DCT) with AI-based methods (CNNs, GANs) using metrics like PSNR, SSIM, and detection accuracy. Results indicate that while traditional methods are simple to implement, AI-based techniques excel in detection resistance and data hiding quality. Specifically, DCT achieves superior image fidelity with high PSNR (36.244 to 96.954) and nearly perfect SSIM, making it ideal for robust data concealment. GANs generate images closely resembling originals with moderate PSNR (8.341 to 14.740) and SSIM (0.199 to 0.812), offering strong detection evasion albeit demanding substantial computational resources. This research emphasizes the importance of method selection tailored to specific needs, balancing computational complexity, detection resilience, and image fidelity. Future work should focus on optimizing AI algorithms for efficiency and addressing ethical implications in deploying advanced steganographic techniques.

Keywords: Steganography, LSB, DCT, CNN, GAN.

Paper ID #369

Using Server-side Processing Techniques to Optimize Data Presentation Responsiveness

Gat Gat, Muh. Jamil, Irawan Wingdes, Tri Widayanti,
Tony Wijaya, Kusrini

ABSTRACT

One of the biggest challenges facing web developers in the rapidly changing digital world is how to convey massive volumes of data in an effective and adaptable manner. The use of server-side processing techniques to enhance the responsiveness of web applications' data presentation is covered in this article. Faster data serving is made possible by this strategy, which transfers the majority of the client's processing work to the server—especially in contexts with massive and complicated data. The goal of this project is to use the Gatling tool to simulate loads, evaluate response time, throughput, and latency in various big data scenarios, and analyze the performance of web applications with server-side processing approaches. The performance of web applications that make use of server-side processing approaches is measured and compared in this study using an experimental approach with load simulation. It is clear from the testing results of the program's versions 1 and 2 that the application with server-side processing techniques implemented for data display is considerably more optimal than the application without such techniques. In comparison to version 2, which took 0.86 seconds on average to reply to queries, version 1's server took an average of 0.31 seconds. According to the web page performance, version 1 loaded resources faster than version 2, taking 1.52 seconds as opposed to 105 seconds. Version 1 of the web page takes 0.082 seconds to render on the GPU, while Version 2 of the program takes 0.86 seconds.

Keywords: SPP, responsiveness, application, gatling, DevTools.

Paper ID #373

Promoting Indonesian Batik as a Symbol of National Identity: A Bibliometric Approach

Adhi Murti Citra Amalia H, Nisrin Husna, Satria Fadil Persada

ABSTRACT

Indonesia has gone through a long journey to fight claims with other nations so that batik is acknowledged as its cultural heritage. The purpose of this study is to investigate the evolution of batik over time through bibliometric analysis to generate recommendations for promoting batik as a representation of national identity. A total of 1480 documents from the Scopus database were examined, originating from 563 different sources, including journals, conference papers, book chapters, and so on. The findings indicate that there has been a 16,89% annual growth rate in this field of research. The average age of the documents is 3,99% years, suggesting that the materials are new and relevant to current developments. Each study was cited 4,592 times with 38100 references, which proposes that although the citation rate may not be particularly high, the academic interest in this field is steadily increasing. Since a wealth of knowledge is gathered from scholars around the globe, this study might be extremely helpful in the future of the development of batik promotion. Thus, the results of this study are expected to have implications for national sovereignty and the accomplishment of global sustainability goals.

Keywords: Batik, Promotion, National Identity, National Sovereignty, Bibliometric.

Paper ID #374

3LGM (The Three-Layer Graph-Based Meta Model) Model in the Design of High School Academic Information System Enterprise Architecture

Arif Muhamad Nurdin, Dede Rizal Nursamsi, Nuk Ghurroh Setyoningrum, N. Nelis Febriani Sm, Robby Maududy and Amelia Mar'Atusholihat

ABSTRACT

Effective enterprise architecture design is an important requirement in the development of academic information systems for senior high schools (SMA). The 3LGM (Three-Layer Graph-Based Meta Model) model offers a structured framework for developing information system architectures that support academic operations and management. This study examines the application of 3LGM to academic information systems in senior high schools, which include three layers: conceptual layer, logical layer, and physical layer. By using the 3LGM model, this study aims to identify the main components, information flows, and technological infrastructure needed to support academic processes efficiently and effectively.

Keywords: 3LGM, Enterprise Architecture, Academic Information Systems, System Design.

Paper ID #379

Information Security Governance in Educational Institutions Using the COBIT 5 Framework

Irene Nur Arta Purba Siboro, Jamson Siallagan, Asmat Purba, Lasmah Ambarita, Sostenis Nggebu, Lasino.

ABSTRACT

Information security governance is crucial in educational institutions to protect sensitive information and minimize security risks. This study aims to evaluate the information security governance in educational institutions using the COBIT 5 framework, focusing on five primary processes derived from mapping business objectives related to information security: EDM03, APO12, APO13, BAI06, and DSS05. The research will be a descriptive qualitative study employing a method of distributing questionnaires to seven educational institutions in the Jabodetabek region. The findings indicate that the average maturity level of the seven educational institutions studied is only at level 1 in the implementation of information security governance based on the COBIT 5 framework. This result highlights a significant gap from the desired target level 4 expected by these institutions. The study also identifies several areas needing improvement and enhancement. Produces 20 recommendations, consisting of 7 recommendations for short-term strategies, 8 recommendations for medium-term strategies, and 5 recommendations for long-term strategies. These recommendations include the development of more comprehensive information security policies. The findings of this study provide a better understanding of the status of information security governance in educational institutions and offer guidance for improvement and enhancement. It is hoped that the findings and recommendations from this research will serve as a foundation for educational institutions to improve and strengthen their information security governance, protect sensitive information, and maintain stakeholder trust. .

Keywords: information security, evaluation, governance, COBIT 5, education.

Paper ID #381

User Experience (UX) Evaluation of Application JMO BPJS Ketenagakerjaan at Pontianak Branch Office Using The PACMAD Method

Muhammad Azwar Daembana, Maulana Ikhsan Kamil, Teguh Prasandy

ABSTRACT

BPJS Ketenagakerjaan is a public legal entity that provides labor protection programs, one of which is Jaminan Hari Tua (JHT). Participants of BPJS Ketenagakerjaan can claim their JHT benefits through various methods, one of which is by using the online claim feature via the Jamsostek Mobile (JMO) application. Alongside its usage, the JMO application requires user participation to provide evaluations in terms of user experience. In line with the title of the author's research, this study aims to understand the user experience when using the JMO application, especially for claiming their JHT benefits using the data update feature, and to identify any constraints within the JMO application system itself. By using the PACMAD method and SEM-PLS testing using the SmartPLS application, the test results yielded an R Square value indicating a strong category and an F Square value indicating a small category for the Errors variable over the Satisfaction variable. With that result, there is a need for user interface improvement and the development of the data update feature, namely the addition of manual face verification options and the addition of data update reset options via OTP or through the toll-free Call Center 175.

Keywords: User Experience;PACMAD;BPJS Ketenagakerjaan;Jaminan Hari Tua (JHT);Jamsostek Mobile (JMO);Data Update;SEM-PLS;SmartPLS.

Paper ID #382

Optimizing Economates: Lean UX-Driven Redesign for Enhanced Economic Literacy, User Satisfaction, and a Smarter Learning Experience

Mayla Zida Rahma Izzati, Risma Ayu Dwi Septyani, Octaviera Nanda Aji Cahyani, Teguh Prasandy

ABSTRACT

Economates is a mobile-based online learning platform aimed at enhancing economic literacy in a practical and accessible manner. Several features are provided, such as economic and Islamic economic materials, an economic dictionary, and a bibliography. This study aims to analyze the user experience (UX) and improve the user interface (UI) of the Economates application using the Lean UX method with the variables of Content, Material, and Design Features. This research employs a survey with a questionnaire instrument distributed online to 91 users of the Economates application. Data were analyzed using Smart-PLS. The f-square table shows the correlation between Content and Features with an effect size of 0.013. This value falls within the range of 0.002 – 0.015, indicating that the correlation between Features and Content is still relatively small. The R-square test result of 59.3% indicates that the majority of users agree that the features provided by the application help improve their understanding of economics in a flexible manner. Based on the research findings, three key areas for UI improvement were identified: subscription package notifications and payment methods. The application of the Lean UX method in development has been proven to significantly enhance the user experience, leading to increased user engagement and satisfaction. Improving the UX and UI of the Economates application can also encourage wider adoption and improve the effectiveness of the digital learning platform in promoting economic literacy. Future research is expected to expand the scope of subjects and variables studied and to evaluate the long-term impact of the implemented improvements.

Keywords: Economates, Lean UX, Smart-PLS, User Interface, User Experience, Economic Literacy.

Paper ID #383

Developing Campus Digital Twin with Integrated 3D Point Clouds and 3D Modeling Techniques

Ryan Nathan Utama, Jonathan Sutjiatmadja, Fabrian Osmond, Lucas Stefan, Alexander A S Gunawan, Andry Chowanda, Edy Irwansyah, Fabian Surya Pramudya

ABSTRACT

Exploring digital twin technology through the creation of 3D digital model offers a powerful tool for enhancing real-time monitoring, predictive analysis, and optimization of complex systems. The purpose of this study is to develop a 3D digital model of our building campus as the first step towards developing a digital twin of the university. In this study, we develop a digital model with integrated 3D point clouds and 3D modeling techniques. By scanning the physical model of the campus, data in the form of point clouds is extracted and unnecessary noise is deleted using Autodesk Recap Pro. These point clouds are used as a benchmark to ensure the 3D models created using Blender are as accurate as possible to the physical model. After successfully creating the digital model, several features/interactions are implemented using Unity to mimic the physical model, thus developing the digital twin. The digital twin of the campus will be used to develop a virtual tour of the campus. We concluded that the 3D digital model of the campus was successfully developed, despite the time-consuming nature of the process. We hope that this study serves as a reference to optimize and enhance digital twin development in the future.

Keywords: 3D Modeling, Digital Campus, Digital Twin, Point Clouds.

Paper ID #394

Optimizing Cluster Methods: Combining K-Means with Hierarchical Techniques for Better Results

Diyah Ruswanti, Ichwan Joko Prayitno, Firdhaus Hari Saputra Al Haris

ABSTRACT

The K-Means algorithm in the clustering process has limitations when dealing with clusters that have undefined sizes and shapes. One way to overcome this weakness is by using another algorithm to determine the number of clusters. Hierarchical clustering has the ability to recognize clusters of various sizes and shapes, and it also provides a visual representation in the form of a dendrogram. The collaboration between Hierarchical clustering and K-Means, when applied in clustering the research topics of final-year students, resulted in a total of 10 clusters. The object is Informatics Study Program at Sahid Surakarta University with 143 data that have been cleaned and ready to cluster. The aim of this research is to determine the contribution of the hierarchical method when combined with the K-means algorithm for clustering. The data used consists of abstracts from students' final projects, where the data has a varied form with different sizes and shapes of abstracts. Let me know if you need further adjustments! This study uses the CRISP-DM (Cross-Industry Standard Process Model for Data Mining) technique and uses a combination of hierarchical clustering and K-means clustering to group the data. The cluster center and number of clusters are determined using the hierarchical clustering technique. Next, K-means clustering optimizes the centroid location by repeatedly calculating the centroid of each cluster. This calculation continues until the centroid value is stable or the iteration limit is reached. After K-means reaches a stable centroid, the centroid value is considered accurate. Combining the two will provide better clustering results. Based on the clustering results, 10 clusters were formed. The fourth cluster is a non-specific cluster. The quality of the cluster results is calculated using intra-cluster similarity and inter-cluster similarity, with an average value of 0.210 for inter-cluster similarity and 0.716 for intra-cluster similarity. The cluster value is included in the "good" category. As a reference, the best inter-cluster similarity value is 0 and the best intracluster similarity value is 1.

Keywords: hierarchical, k-means, crips-dm, thesis, cluster, topic thesis.

Paper ID #395

Enhancing Decision-Making in Local Government through K-Means Clustering of Structural Officials' Performance

Adrian Unggul Wirawan, Hardika Khusnuliawati, Astri Charolina

ABSTRACT

This study explores the application of the KMeans clustering algorithm to assess the performance of structural officials in the Karanganyar Regency Government, revealing significant insights into employee performance levels. Utilizing data from the 2021 Employee Performance Targets, which includes key metrics such as SKP Value, Service Orientation, Commitment, Cooperation, Leadership, and Work Initiative, the analysis categorized officials into three performance clusters: "very good", "good", and "satisfactory". The clustering process was validated with DBI value of 0.113, demonstrating high intra-cluster similarity and well-formed clusters. This method serves as a clearer, data-driven alternative to traditional individual performance assessments, reducing evaluation time and enhancing accuracy. Furthermore, the clustering analysis empowers regional leadership to make informed decisions regarding job promotions and personnel management. Overall, this study highlights the potential of machine learning techniques, such as K-Means clustering, to improve efficiency and decision-making within government operations.

Keywords: K-Means clustering, performance assessment, structural officials, Karanganyar Regency, machine learning, Davies-Bouldin Index (DBI), public service management, employee evaluation.

Paper ID #396

Development of a Web-Based Forecasting System Using the Holt-Winters Exponential Smoothing Method to Improve Accuracy in Predicting Cut Flower Harvest Needs

Wayan Cishe Fransiska Saputri, Farid Fitriyadi, Hardika Khusnuliawati

ABSTRACT

Information is the result of data processing so it becomes important for the recipient and is useful as a basis for decision making. In the flower business, production information is needed to determine the number of cut flowers to match customer demand in the future. This aims to minimize losses that occur due to a shortage or excess of cut flowers. There are still live flower shops that use manual methods and feelings to determine cut flower needs. Therefore, a website-based forecasting system is needed to provide estimated flower cuts for the next period for businessmen. The application was built using the PHP programming language by implementing the Holt-Winters exponential smoothing forecasting method. The Holt-Winters method was used to estimate flower needs, especially cut flowers for bouquet products. Calculation of error score in the method was calculated by MAPE testing. Based on the test results, it is known that the error score in the Holt-Winters forecasting method for the number of cut flowers in a bouquet of Aster, Roses, and Pikok is 13.89%, 16.54%, and 13.23% respectively and they are in Good category. This method has lower error percentage for Aster, Rose, and Pikok flower respectively by 3.95%, 1.86%, and 14.01% than by using florist former method.

Keywords: Forecasting, Website, Holt-Winters Exponential Smoothing, Flower Bouquet.

Paper ID #397

Implementation Of Web-Based Medical Record Information System: A Case Study In Inpatient Clinic

Bayu Ismunandar, Hardika Khusnuliawati, Firdhaus Hari Saputro Al Haris

ABSTRACT

This paper presents the design and implementation of a web-based medical record information system for the PKU Muhammadiyah Jatipuro Clinic, aiming to transition from a traditional paper-based system to a digital platform to address inefficiencies in record management. The system leverages the CodeIgniter framework with a Model-View-Controller (MVC) architecture, offering enhanced functionality for patient data management, report generation, and medical record accessibility. Key results from User Acceptance Testing (UAT) indicate high user satisfaction, with average scores above 4.0 in functionality, usability, and overall user experience. The system significantly improved data retrieval speed, minimized duplication, and streamlined administrative workflows, highlighting the benefits of digital transformation in healthcare settings. This study emphasizes the potential of web-based solutions to enhance healthcare efficiency, accuracy, and data management.

Keywords: web-based system, medical records, healthcare, digital transformation, CodeIgniter.

Paper ID #399

Optimizing Lighting Efficiency Through Automated Smart Lighting Systems: A Study on NetworkBased Performance

Lestari Ningratna Sari, Sri Huning Anwariningsih, Hardika Khusnuliawati, Dahlan Susilo

ABSTRACT

Electrical lighting systems contribute to approximately 20% of global electricity consumption and 6% of carbon dioxide (CO2) emissions, underlining the urgent need for more efficient and adaptable lighting solutions. Addressing the inefficiency of traditional manual lighting controls is crucial for reducing energy waste, especially in the global energy crisis and increasing carbon emission reduction targets. Despite advances in lighting systems, existing solutions often lack integration of intelligent control and real-time adaptability across diverse networks. This research addresses these gaps by developing a novel automated smart lighting system to optimize energy usage through intelligent control across multiple network environments. The proposed prototype integrates Raspberry Pi modules, relay modules, JavaScript Object Notation (JSON), Thonny IDE, and a web-based Application Programming Interface (API) to enable seamless automation and remote operation. The proposed system was tested under various conditions: local area network (LAN), wide area network (WAN), offline functionality, and across multiple web browsers to evaluate latency and operational reliability. The research results demonstrate that the system performs efficiently online and offline within the same or different networks. For online operations within the same network, delay times for light A ranged between 27 to 39 seconds, light B from 37 to 39 seconds, and light C at 33 seconds. The fastest delay on different networks was 5 seconds, with the longest at 39 seconds. Chrome browser exhibited the fastest performance with a delay of 6 seconds, while Samsung Internet had the longest delay at 39 seconds. These findings highlight the system's adaptability and potential for energy savings, though further work is required to optimize latency and extend network coverage.

Keywords: prototype, Raspberry Pi, smart lighting, thonny IDE.

Paper ID #400

UI/UX Design for Triwindu Market Surakarta

Alma Fikri Setya Nugraha, Farid Fitriyadi, Evelyne Henny Lukitasari

ABSTRACT

Triwindu Market is unique in its focus on selling antiques and traditional Javanese items. It is one of the traditional markets dedicated to antique items, collections, and traditional Javanese goods. The main challenge faced by Market Triwindu is the accessibility of information for tourists regarding the stalls in the market. There are approximately 10 stalls in Market Triwindu, and traders have expressed concerns about declining visitor numbers and daily income due to a reliance on direct sales. Therefore, an online platform is needed to boost indirect sales and to promote the products available in Market Triwindu more broadly. Using a design thinking approach that starts from idea observation, data collection using qualitative methods, visualization, design creation, and evaluation, the result is a website system employing user interface and user experience design to enhance promotional efforts, facilitate communication between consumers and businesses, and serve as an information platform to make Market Triwindu more appealing and accessible to consumers. The following user interface and user experience components must be taken into account when designing for traditional markets: 1. User-friendly navigation that makes it simple for market visitors to examine details about vendors, product categories, and locations, 2. Because of the diverse market setting, visitors will find it easier to locate the stalls they are looking for with the use of clear typography and icons, 3. Consistent use of color and market branding that is in line with Pasar Triwindu's history and cultural identity improves aesthetic appeal and rapidly forges an emotional connection with guests, 4. A seamless user experience is ensured by the system's responsive and quick interaction when users click links or submit data, which lowers friction and boosts user satisfaction, 5. Adaptable Product Search Functionalities according to product types, vendors, or price points.

Keywords: user interface, user experience, market.

Paper ID #401

Development of a Public Complaint Classification Model to Support E-Government using IndoBERT

Nova Agustina, Muchammad Naseer, Harya Gusdevi, Danny Aidil RIsmayadi

ABSTRACT

The Indonesian government has placed significant focus on the implementation of e-government over the past decade to improve public services through the use of information and communication technology. E-government facilitates public access to government services online, reduces the need for face-to-face interactions, and simplifies the management of various administrative tasks. One of the key aspects of e-government is its ability to respond to public complaints quickly and accurately, thereby improving the quality of public services and increasing public trust in the government. However, approximately 41.4% of the public still feels dissatisfied with the services provided by the government. Therefore, efforts are needed to enhance public trust through digital transformation, with an emphasis on increasing transparency and accountability in service delivery. This research focuses on developing a community complaint classification system utilizing deep learning technology, specifically the IndoBERT model. The dataset used in this study consists of 1,000 augmented public complaint data entries sourced from Satu Data Indonesia. The evaluation results show that the model achieved an accuracy of 99.9%, with a precision of 99.99%, a recall of 99.9%, and an F1-score of 99.89%. The model has proven to be highly effective in helping the government efficiently and accurately categorize and direct public complaints to the relevant agencies. This research, therefore, makes a significant contribution to the development of a more responsive and transparent e-government system for addressing public complaints.

Keywords: complaint, classification, IndoBERT, Government.

Paper ID #402

Automatic Ventilation Scheme to Increase the Coolness Smart Buildings

Muhammad Yusuf Arifin; Khairunissa Chandra Kinanti; Alif Zhafar; Dina Kristiana Seftianingsih; Astri Charolina; Marwahyudi

ABSTRACT

Automation of building components such as windows, doors, cupboards, lights, air conditioners are a necessity in activities. Automatic windows increase comfort and coolness in the room. Automatic windows will open when the room is hot and will close when the room is cold. This automation increases the comfort of the occupants. In addition, it makes the building technological. This automation scheme requires several components as follows; a thermometer functions to measure the room temperature which is connected to the elechouse v3 module. Elechouse v3 processes temperature data into digital data which is connected to the Arduino Uno. Arduino Uno functions as a microcontroller. The relay module functions to execute commands from Arduino no and maintains the solenoid lock door voltage stable. The solenoid lock door functions as a mechanical opener and locker. Automation using Arduino Uno is expected to run as expected, the results of previous research as a basis for creating an automatic window scheme to increase coolness in the room.

Keywords: Keywords— automatic ventilation, coolness, smart building.

Paper ID #404

Utilizing Transfer Learning For Brain Tumor Detection And Grad-Cam Visual Explanation

Green Arther Sandag, Raissa Maringka

ABSTRACT

Human life is susceptible to a wide range of diseases, from mild conditions to severe threats, with brain tumors posing a particularly significant health challenge. These tumors affect individuals of all ages and contribute substantially to the global disease burden, as reported by the Global Cancer Observatory (GLOBOCAN). Recent advancements in medical image processing, particularly through deep learning technologies, have facilitated faster and more accurate detection of brain cancer. This study explores the application of Convolutional Neural Networks (CNNs) with various transfer learning models, including VGG16, VGG19, EfficientNetB1, EfficientNetB3, EfficientNetB5, and EfficientNetB7. Additionally, the study utilizes Grad-CAM (Gradient-weighted Class Activation Mapping) to provide visual interpretations of the model's predictions, enhancing understanding of the decision-making process. The results indicate that EfficientNetB3 outperforms the other models, achieving an impressive accuracy of 98%. This model has been integrated into a web-based system to assist in the identification of brain tumor images. The combination of EfficientNetB3 and Grad-CAM offers a robust approach for accurate tumor detection, delivering not only high diagnostic performance but also valuable visual insights that can support clinicians in their evaluations.

Keywords: cnn; vgg; efficientnet; grad-cam; GLOBOCAN.

Paper ID #405

Employee Attendance Through Face Recognition Using The Haar Cascade Classifier Method

Dionisius Yosa Ardhito, Dahlan Susilo, Diyah Ruswanti, Dwi Retnoningsih, Agus Kristianto, Setiyowati Setiyowati

ABSTRACT

Human resource management in an organization is a very important factor. The same is done by the management of Mbak Dwi's restaurant. However, until 2022, the management of employee attendance still uses a manual system. Manual attendance systems often cause attendance data to be at risk of being manipulated so that the data is invalid. The purpose of this study is to create a presence system with face detection using the HAAR Cascade Classifier method. The methods used in this study include the literature method, an observation method and a prototyping method. This research produced a presence system using face detection. The test results show that the system was able to detect and identify faces well with the use of 5W (261 Lux) LED lights at a distance of 20 to 40 centimeters. In dry face conditions, it has a very good accuracy value at a distance of 20 to 40 centimeters. Recording the employee's face was carried out at a distance of 20 to 40 centimeters using a light approximately 261 Lux with dry face condition. This is done so that the image of the face can be captured by the attendance system perfectly. There were several drawbacks to the use of the HAAR Method, namely the face position, the image shooting condition, the direction of the light source, and the characteristics of the sensor and camera lens. .

Keywords: Face recognition, Employee attendence, HAAR Cascade Classifier, Local Binary Pattern Histogram, Raspberry Pi 3B.

Paper ID #406

Android-Based Restaurant Food Donation and Distribution App for Helping Hands Using Global Positioning System

David Jonathan Kawengian, Novrando Natanael Hizkia, Semmy Wellem Taju

ABSTRACT

This research aims to design an Android-based application for the donation and distribution of surplus and leftover food from restaurants to support underprivileged residents. We utilized Global Positioning System (GPS) technology to efficiently connect food donors with those in need, ensuring that only safe and edible surplus food is distributed, while intentionally excluding inedible waste. The integration of GPS is anticipated to enhance the efficiency of both food collection and distribution processes. The research follows the Prototype method and utilizes observational techniques. Technologies used include JavaScript and PHP, with React Native as the framework, and MySQL as the database. The outcome of this research is a streamlined process for restaurants to manage surplus food distribution and facilitate easy food donations through smartphones. .

Keywords: Surplus Food Distribution, JavaScript, PHP, React Native, MySQL.

Paper ID #407

Deep Learning for Explicit Content Classification in Music Lyrics

Raissa Camilla Maringka, Green Arther Sandag

ABSTRACT

The rapid advancement of technology has transformed how music is accessed and consumed, particularly among younger audiences, making explicit content—such as themes of violence, sexuality, and coarse language—a growing concern for their development. Most music platforms lack automated systems to effectively filter such content, creating a need for more reliable detection methods. This research develops machine learning models, specifically LSTM and BERT, to detect explicit content in English-language music lyrics. The evaluation results show that while the LSTM model achieves an 88% accuracy with strong precision, recall, and F1-score, it still presents some False Negatives and False Positives. In contrast, the BERT model demonstrates superior performance with 94% accuracy and high precision, recall, and F1-score values. These findings highlight the effectiveness of BERT in content detection, offering a significant advancement over existing methods and providing a robust solution for music platforms to safeguard younger users from harmful content, ensuring a safer and more responsible digital listening environment. .

Keywords: explicit content, text classification, deep learning, LSTM, BERT .

Paper ID #408

Preserving Balinese Culture Using Augmented Reality Technology for Ogoh-ogoh Art

Evi Triandini, I Made Suandana Pande Astika, Djoko Kuswanto, Marlowe Bandem, Padma Nyoman Crisnapati, Sitti Rahmah

ABSTRACT

This research investigates the innovative use of Augmented Reality (AR) technology, specifically model targets, as a means to preserve and promote Balinese culture, with a specific focus on the traditional art of Ogoh-ogoh sculptures. Ogoh-ogoh art, deeply rooted in Balinese traditions, is a vibrant and intricate form of cultural expression that faces challenges in preservation and accessibility in an increasingly digital world. The primary objectives of this research include the creation of detailed 3D models of Ogoh-ogoh sculptures, utilizing them as model targets for AR applications. Through these model targets, users and explore virtual Ogoh-ogoh sculptures, gaining insights into their historical significance, stories, and cultural context. Collaboration with the local experts, artists, and cultural institutions ensures cultural authenticity and respect for Balinese heritage, setting the groundwork for sustainable preservation and promotion. Additionally, the research examines the potential for cultural tourism growth in Bali through the application of AR technology. The finding of this research underscore the significant impact of technology on cultural preservation, accessibility, and promotion. By bridging the gap between tradition and modernity, this innovative approach not only safeguards Balinese cultural but also opens is up to global audience, fostering cross-cultural understanding and appreciation. Future research could expand the use of AR technology to other facets of Balinese culture, such as traditional dance, music, or rituals. It could also investigate the potential of similar approaches in preserving and promoting cultural heritage in other regions.

Keywords: Balinese culture, ogoh-ogoh art, augmented reality, model target, cultural preservation .

Paper ID #409

Review of Applications in Wheelchair Control Using Emotiv Insight and Emotiv Epoc Headsets

Yamin Thwe, Dechrit Maneetham, Padma Nyoman Crisnapati

ABSTRACT

This review paper investigates the applications of two consumer-grade EEG headsets, Emotiv Epoc and Emotiv Insight, in controlling wheelchairs through brain-computer interfaces (BCI). By systematically analyzing 34 studies, the paper explores the contributions, methodologies, and signal processing techniques used in developing BCI-controlled wheelchair-controlled systems. The Emotiv Epoc, equipped with 14 channels, has been a popular choice for motor imagery-based control systems. These systems have demonstrated accuracy rates of up to 90% in controlled environments. However, real-world robustness remains a challenge, as mental focus and signal stability can affect performance, leading to limitations in naturalistic settings. Conversely, Emotiv Insight, with its more compact 5-channel setup, has gained traction in simpler, user-friendly applications. Often, these systems integrate multi-modal inputs, combining EEG signals with facial expressions or other control mechanisms. Despite its lower resolution compared to the Epoc, the Insight has achieved notable accuracy rates, reaching up to 91% in hybrid control systems. This review discusses the strengths and limitations of both headsets, identifying key challenges in signal processing, control accuracy, and the usability for assistive mobility in real-world settings. The paper also highlights the potential improvements necessary to advance the development of more practical, reliable BCI systems for individuals with mobility impairments.

Keywords: brain-computer-interface, eeg, emotiv insight, emotiv epoc, wheelchair control.

Paper ID #410

Upsampling RR-Interval, Is It Possible?

Muhammad Zakariyah, Umar Zaky, Muhammad Falah Akbar Al Faiz, Sulistyo Dwi Sancoko, Moh. Ali Romli and Muhammad Rafi Basyari

ABSTRACT

Upsampling data on Electrocardiogram (ECG) is needed especially when obtaining data with a low sampling rate. This study aims to determine the effect of RR-interval (RRi) upsampling on the Heart Rate Variability (HRV) feature in the time domain, while testing the performance of several machine learning algorithms with the K-Fold Cross Validation approach. The study began by extracting RRi from ECG data through peak detection, then performing upsampling starting from 1.25x to 3x on RRi Origin. Each RRi data, both RRi Origin and RRi upsampling results, were then extracted with HRV values in the time domain. The results of HRV extraction were tested on several machine learning algorithms (Neural Network, Support Vector Machine, Decision Tree, K-Nearest Neighbor, and Gradient Boosting). The results show that overall RRi Origin (without upsampling) provides the best Accuracy, AUC, and F1-score on the Gradient Boosting prediction algorithm, at 78.54%, 0.865, and 81.73%, respectively. However, 2.25x upsampling on Decision Tree achieves the best results in terms of Recall (91.81%). This finding suggests that although RRi Origin tends to provide more balanced performance, upsampling at a certain level can increase the sensitivity of machine learning algorithms. This study shows that ensemble techniques can provide better accuracy for prediction. However, it is important to consider the characteristics of the dataset and the need for interpretability when choosing an algorithm.

Keywords: RR-interval, Upsampling, Heart Rate Variability, Machine Learning, K-Fold Cross Validation.

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Improvement of k-NN Algorithm Performance in Classifying High School Students' Majors

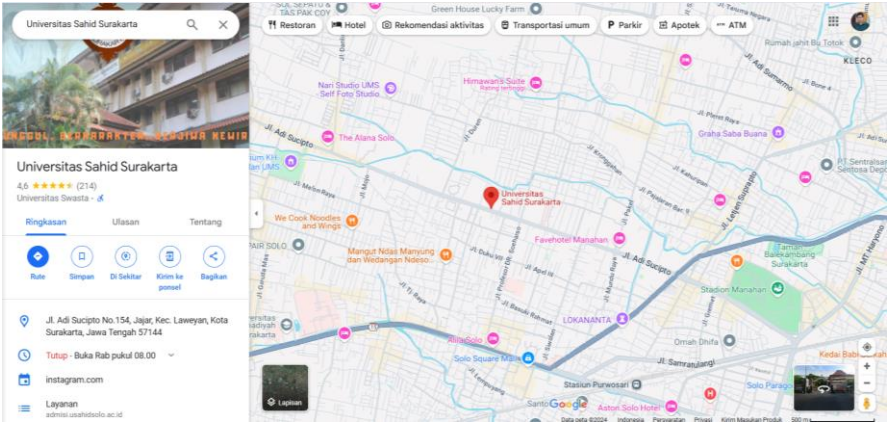
Adityo Permana Wibowo

ABSTRACT

Classifying high school students into appropriate academic majors is essential to align their academic strengths with future studies and career paths. This study aims to improve the accuracy of classifying students' majors into Mathematics, Language, and Science using the k-Nearest Neighbors (k-NN) algorithm. The dataset used was 243 student records with a 70:30 training and testing data split and an optimized K value of 9, the model achieved an accuracy of 93.15%. The results show that with careful tuning, k-NN is a highly effective method for classifying students into appropriate academic tracks. This study demonstrates the potential of k-NN as a decision support tool for educational institutions, offering a data-driven approach to assist the student major placement process. Future studies can explore additional features and alternative machine learning techniques to further improve the model's performance.

Keywords: Improvement, Classification, k-NN Algorithm, High School, Student's Majors.

SITEMAP



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