ICORIS2023
The 5th International Conference on Cybernetics and Intelligent System

Proogram Book

5th International Conference on Cybernetics and Intelligent Systems (ICORIS)

Conference on 06-07 Oktober 2023

Atma Luhur, Pangkal Pinang Bangka Belitung Islands, Indonesia

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MESSAGE FROM THE ICORIS 2023 CHAIRMAN

Assalaamu ‘alaykum warahmatullahi wabarakaatuh,

After four successful ICORIS conference sessions, we are proud to present the fifth edition of ICORIS. We believe that ICORIS 2023 is an excellent and wonderful opportunity that allows researchers to present and discuss the latest innovations, results and developments in their research topics. This year's theme is "Accelerating the Implementation of AI for Human Well-Being". This conference is expected to strengthen collaboration and provide a forum for academics, professionals and researchers to discuss and exchange research results, innovative ideas and experiences to advance the fields of Information Technology, Information Systems and Electronics Engineering in the modern world. This event will include extensive discussions and consist of additional workshops, guest speaker sessions, and engaging social events that will help our future leaders develop their networks and turn their ideas into action.

ICORIS 2023 covers the general areas of communications and information technology. It provides a forum for presenting and discussing the latest innovations, results, and developments in Signal processing and Analysis, Computing and Processing, Communication, Networking, Security and Broadcasting, Power, Energy, and Industry Application, Information Systems and Multimedia, Robotics and Control. We present several tracks separated into nine thematic areas, each ICORIS 2023 track is a carefully curated selection of sessions and activities focused on an important current or emerging issue. There were 211 papers submitted and only 80 papers were accepted to be presented at this Conference. Accepted papers will be presented in one of the regular sessions and will be published in the conference proceedings volume. All accepted papers are submitted to IEEEXplore. IEEE Conference Number: #56380.

On behalf of the ICORIS 2023 committee, we extend a warm welcome and thank all the Key Speakers, Reviewers, Writers, and Committee, for their valuable efforts, guidance, contributions and support

Wa billahi taufiq wal hidaayah.
Wallahul muwaffiq ila aqwamit-tharieq.

Wasalaamu ‘alaykum warahmatullahi wabarakaatuh.
Husni Teja Sukmana, Ph.D

WELCOME MESSAGE FROM ISB ATMA LUHUR RECTOR

Assalaamu ‘alaykum warahmatullahi wabarakaatuh

Distinguished guests, esteemed colleagues, and friends from around the world, It is a distinct honor and privilege to welcome you to the 2023 International Conference on ICORIS 2023. This conference stands as a testament to the power of global cooperation and knowledge exchange in shaping our future.

In the ever-evolving landscape of academia and innovation, international conferences provide a vital platform for cross-cultural dialogues and the dissemination of groundbreaking ideas. This year, our conference will serve as a beacon for intellectual exploration and collaboration, where we will delve into the frontiers of Technology and forge connections that transcend borders. The digital era has changed many dimensions of people's lives, both positive and negative. The fast-paced and unpredictable development of digital society requires systematic and strategic efforts in handling it. This is to ensure that technological and media developments can lead us to the desired social change. Social changes that can provide a better and more equitable level of welfare for the entire community. During this conference, i hope all of the speakers, reviewers, authors, and committees can ellaborated each other towars the same goals and also support, quidance, and contribution. As we gather here today for this intellectual journey that spans the next time, we aspire to foster innovative solutions, nurture interdisciplinary collaborations, and address the paramount challenges that define our era.

I extend my sincere appreciation to the participants, presenters, organizers, and sponsors whose dedication has made this conference in 2023 possible. Your commitment to the pursuit of knowledge and progress is the driving force behind this event.

Let us embark on this remarkable voyage together, driven by curiosity and the quest for excellence. In the year 2023, may this International Conference on ICORIS 2023 ignite new perspectives and pave the way for a future where global cooperation knows no bounds. I wish all of you can enjoy this conference, and the last but not least many big thanks.

Wasalaamu ‘alaykum warahmatullahi wabarakaatuh.

Prof. Dr. Moedjiono, M.Sc.

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Keynote Speaker

JIANN-LIANG CHEN Prof. Chen was born in Taiwan on December 15, 1963. He received his Ph.D. in Electrical Engineering from National Taiwan University, Taipei, Taiwan, in 1989. Since August 1997, he has been with the Department of Computer Science and Information Engineering of National Dong Hwa University, where he is a professor and Vice Dean of Science and Engineering College. In August 2009, Prof. Chen joined the Department of Electrical Engineering, National Taiwan University of Science and Technology. He is now a Distinguished Professor and dean. His current research interests are directed at cellular mobility management, cybersecurity, personal communication systems, Internet of Things, and AI applications.

PROF. ZAINAL ARIFIN HASIBUAN, Ph.D, Ph.D was born in Pekanbaru on 24th December 1959. He received his Ph.D in Indiana University, USA. He earned degrees from several faculties, a bachelor degree majoring in statistics at Bogor Agricultural Institute (IPB), a master of information science at Indiana University and there he continued his Ph.D degree studies majoring in information storage and retrieval systems. He has joined the management of APTIKOM headquarters in the core management as the general secretary. He is also a Professor of Computer Science at the University of Indonesia (UI) and also as chairman of the Indonesian digital library conference.

ASSOC. PROF. Dr. NORMI SHAM BT. AWANG ABU BAKAR is a Profesional Technologist based at International Islamic University Malaysia (IIUM) since 2021. Apart from that she is also an Associate Professor (DS54), Kuliyyah of Information and Communication Technology since June 2020 till present, and a Deputy Director in Academic Management and Admissions Division since August 2021.She holds a Ph.D in Software Engineering, Australian National University, since 2011 and received her habilitation in Degree at UUM in 1998, and Master of Science in Real-time Sofrware Engineering at UTM in 2022. She currently teaches, consults, and conducts research in Software Engineering and is also interested in the emerging information technologies.

PROGRAM STRUCTURE ICORIS 2023 Monday, 6-7th October 2023

Venue: ISB Atma Luhur, Pangkalpinang, Bangka Belitung - INDONESIA

Jumát, October 6th, 2023

13.00-16.00	**REGISTRATION (In front of Grha Sasana Kasih)**

Saturday, October 7th, 2023

07.00-08.00	**REGISTRATION (In front of Grha Sasana Kasih) and Zoom Open** • Video profile ISB Atma Luhur • Video bumper ICORIS • Video profile Sponsored • Video Lake Toba • Reminder 10 minutes before starting

08.00-09.15	**CONFERENCE OPENING**
	• Opening Event By Master of Ceremony
	• Indonesian National Anthem
	• Pray
	• Conference Report (Chairmant of the comittee) Maxrizal, S.Pd.Si, M.Sc
	• Welcoming Speech
	  ○ Welcoming Speech 1 Dr. Bob Subhan Riza (Chairman of CORIS)
	  ○ Soft Launching Corisinta Journal, Dr. Djoko Soetarno
	• Opening Speech
	  ○ Opening Speech 1 (ISB Atma Luhur) Prof. Dr. Moedjiono, M.Sc. (Rektor)
	• Video Opening ICORIS 2022

09.15-09.45	**KEYNOTE I** Theme : Build Trusted Infrastructure System With Blockchain for Society 5.0 Prof.Ir Zainal Arifin Hasibuan MLS., Ph.D
09.45-10.15	**KEYNOTE II I** Theme : Leveraging Blockchain Technology For Sustainable Community Assoc.Prof.Dr.Normi Sham Bt Awang Abu Bakar
10.15-10.45	**KEYNOTE II** Theme : On the Spot Prof. Jiann-Liang Cheng
10.45-11.50	**Q&A**

12.00-13.00	**LUNCH AND SHOLAT** • Video role of the conference • Video bumper • Prepare Breakout Room
13.00-14.00	ROOM 1 - ROOM 5 Session 1 (4 Presenter each room)
14.00-15.00	ROOM 1 - ROOM 5 Session 2 (4 Presenter each room)
15.00-16.00	ROOM 1 - ROOM 5 Session 2 (4 Presenter each room)
16.00-17.00	ROOM 1 - ROOM 5 Session 2 (4 Presenter each room)
17.00-18.00	**CONFERENCE CLOSING** • Reminder 10 minutes before starting • Closing Ceremony • Best Paper Announcement (Chairmant of the CORIS 2022) • Closing Statement (Chair of technical Program Committee)

ICORIS 2023 PARALLEL SESSION SCHEDULE

Sesion 1 13.00 - 14.00	Room 1			Room 2			Room 3			Room 4			Room 5		
	Time	ID Paper	Track	Time	ID Paper	Track	Time	ID Paper	Track	Time	ID Paper	Track	Time	ID Paper	Track
	13.00 - 13.15	13	CNSB	13.00 - 13.15	2	CNP	13.00 - 13.15	27	ISM	13.00 - 13.15	182	ISM	13.00 - 13.15	173	CNP
	13.15 - 13.30	141	CNSB	13.15 - 13.30	4	CNP	13.15 - 13.30	67	ISM	13.15 - 13.30	197	ISM	13.15 - 13.30	187	CNP
	13.30 - 13.45	161	CNSB	13.30 - 13.45	18	CNP	13.30 - 13.45	89	ISM	13.30 - 13.45	208	ISM	13.30 - 13.45	190	CNP
	13.45 - 14.00	204	CNSB	13.45 - 14.00	26	CNP	13.45 - 14.00	94	ISM	13.45 - 14.00	126	RC	13.45 - 14.00	192	CNP

Session 2 14.00 - 15.00	Room 1			Room 2			Room 3			Room 4			Room 5		
	Time	ID Paper	Track	Time	ID Paper	Track	Time	ID Paper	Track	Time	ID Paper	Track	Time	ID Paper	Track
	14.00 - 14.15	46	CNP	13.00 - 13.15	106	ISM	13.00 - 13.15	194	CNP	13.00 - 13.15	150	ISM	13.00 - 13.15	137	CNP
	14.15 - 14.30	80	CNP	13.15 - 13.30	131	ISM	13.15 - 13.30	196	CNP	13.15 - 13.30	164	ISM	13.15 - 13.30	144	CNP
	14.30 - 14.45	84	CNP	13.30 - 13.45	139	ISM	13.30 - 13.45	200	CNP	13.30 - 13.45	170	ISM	13.30 - 13.45	152	CNP
	14.45 - 15.00	86	CNP	13.45 - 14.00	149	ISM	13.45 - 14.00	202	CNP	13.45 - 14.00	179	ISM	13.45 - 14.00	172	CNP

Session 3 15.00 - 16.00	Room 1			Room 2			Room 3			Room 4			Room 5		
	Time	ID Paper	Track	Time	ID Paper	Track	Time	ID Paper	Track	Time	ID Paper	Track	Time	ID Paper	Track
	15.00 - 15.15	95	CNP	13.00 - 13.15	77	SPA	13.00 - 13.15	15	CNP	13.00 - 13.15	3	ISM	13.00 - 13.15	61	ISM
	15.15 - 15.30	101	CNP	13.15 - 13.30	85	SPA	13.15 - 13.30	50	CNP	13.15 - 13.30	20	ISM	13.15 - 13.30	66	ISM
	15.30 - 15.45	119	CNP	13.30 - 13.45	154	SPA	13.30 - 13.45	53	CNP	13.30 - 13.45	23	ISM	13.30 - 13.45	68	ISM
	15.45 - 16.00	132	CNP	13.45 - 14.00	209	SPA	13.45 - 14.00	62	CNP	13.45 - 14.00	48	ISM	13.45 - 14.00	79	ISM

Session 4 16.00 - 17.00	Room 1			Room 2			Room 3			Room 4			Room 5		
	Time	ID Paper	Track	Time	ID Paper	Track	Time	ID Paper	Track	Time	ID Paper	Track	Time	ID Paper	Track
	16.00 - 16.15	81	CNP	13.00 - 13.15	183	CNP	13.00 - 13.15	75	SPA	13.00 - 13.15	185	CNP	13.00 - 13.15		
	16.15 - 16.30	83	CNP	13.15 - 13.30	92	ISM	13.15 - 13.30	104	SPA	13.15 - 13.30	193	CNP	13.15 - 13.30		
	16.30 - 16.45	103	CNP	13.30 - 13.45	176	ISM	13.30 - 13.45	186	SPA	13.30 - 13.45	1	SPA	13.30 - 13.45		
	16.45 - 17.00	128	CNP	13.45 - 14.00	121		13.45 - 14.00	207	SPA	13.45 - 14.00			13.45 - 14.00		

Abstract

ICORIS-2023_paper_1

An Adaptive Boosting Algorithm with Hog in Classification of Mango Leaf Diseases

Rizki Suprayogo, Muhathir, Rahmad Syah
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Abstrac—The boosting algorithm is an ensemble learning method that combines weak learners into robust learners to reduce errors. Each method attempts to compensate for flaws with each iteration; rules are lax. The results of each classifier are combined to form a single strong accuracy rule. There are various types of boasting algorithms. Adaptive Boosting is one method (Adaboost). The adaboost algorithm constructs several weak classifiers over several iterations, affecting the sample weight of the next generation classifier based on classification results, mining in samples by assigning different weights to samples, and finally voting weights to produce a strong classifier. So, using Histogram feature extraction of Oriented Gradient, this research will be tested on cases of Capmodium mango leaf disease and Collectricum mango leaf disease (HOG). The results of the adaboost algorithm and the HOG algorithm as feature extraction yield results with 87% accuracy, 87% precision, 87% recall, and an F1-score of 86.66

Keywords—Boosting algorithm, Classification, Leaf Diseases, HOG Algorithm

Machine Learning Model to Selection of Job Applicant Documents to Increase The Human Resources Department Performance

Inayatulloh Inayatulloh, Rajiv Dharma Mangruwa, Prasetya Cahya S and Nuril Kusumawardani Soeprapto Putri
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Abstract—The planning of the company's existing and future human resource needs is included in the process of human resource recruitment. The availability of human resources, in terms of both quality and quantity, will be significantly impacted by the recruitment process, if it is both efficient and successful. The initial stages of the employee recruitment process involve selecting applicant documents according to company needs. Currently, the document selection process is done manually by studying the applicant documents one by one and then grouping them into several categories. This mechanism is inefficient and risks producing the wrong choices. On the other hand, machine learning has text recognition and image processing capabilities to increase the effectiveness and efficiency of the process. So, the purpose of this research is to help companies, especially the human resources division, improve the effectiveness and efficiency of new employee selection, especially the selection and classification of job applicant documents. The research method uses a qualitative approach with a literature review to identify new employee recruitment problems. The result of this research is that a machine learning model builds a model for selecting job applicant documents using machine learning with the Learning Vector Quantization (LVQ) method.

Keywords—machine learning, human resources department, learning vector quantization, job applicant document**.**

Blockchain Model Adoption to Improve Transaction Transparency in The Insurance Industry

Inayatulloh Inayatulloh, Deny Jollyta, Gusrianty Gusrianty, Prasetya Cahya S, Dwi Oktarina and Nuril Kusumawardani Soeprapto Putri
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Abstact—The insurance industry is a collection of service companies that offer protection services to clients in accordance with contracts and agreements. Insurance claim procedures that utilize conventional computer networks are susceptible to data theft by hackers and carry a high risk of resulting in losses for all parties involved. Blockchain, on the other hand, is a technology that provides an immutable ledger through which insurance companies can transfer insurance claims, thereby helping to eliminate common sources of data theft and destruction in the insurance industry. This research aims to aid the insurance industry in enhancing system security using block chain technology. Using a qualitative approach, problems are identified based on observations of the mechanisms and business processes of insurance companies, particularly those pertaining to the claims process. Literature studies are used to discover alternative information technology-based solutions. This research has produced a block chain model to enhance the insurance system's security

Keywords—Block Chain Technology, Insurance, Smart, Contract, Hash Function

ICORIS-2023_paper_4

IoT and Blockchain Technology Adoption Models to Increase Transaction Transparency in The Car Rental Industry

Inayatulloh Inayatulloh, Novi Rahayu, Liza Yulianti, Jhoanne Fredricka, Khairil Khairil and Indra Kusumadi Hartono
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Abstract—The car rental industry is a collection of companies that offer car rental services for a certain period according to an agreement between the customer and the car rental company. The high demand for customers to rent cars creates lucrative business opportunities for the car rental industry. But the risk of fraud from some customers who manipulate transactions from agreement to agreement becomes a serious problem for car rental companies. On the other hand, Internet of Things technology provides a high level of supervision over a transaction, while blockchain technology has the advantage of providing transparent and immutable transactions for all parties who enter the blockchain network. So, the purpose of this research is to help car rental companies improve the monitoring and transparency of car rental transactions to reduce the risk of customer fraud. The identification of issues is accomplished using a qualitative technique that is based on a review of the relevant literature. Previous research is used to study research that has been conducted by several previous studies for the research to be novel. The result of this research is a model for adopting blockchain technology and IoT for car rental. The paper also displays the process flow for integrating car rental transactions and parts with IoT devices, as well as connections between blocks with a hash value.

Keywords—rent car industry, blockchain, IoT, transparency

ICORIS-2023_paper_13

Security Implementation Againts a Server Using SonicWall

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Abstract—Robust security measures are required for server environments due to the complexity and sophistication of cyber-attacks, which are on the rise. This study investigates the use of SonicWall Network Security Manager (NSM) to create security against a server. For the purpose of defending servers against various cyberthreats, NSM provides centralized management, real-time monitoring, and advanced analytics. The purpose of this study is to offer a thorough examination of SonicWall NSM's security features and gauge how well it protects server architecture. The studies in this paper involve configuring a number of ports on the SonicWall network software in order to preserve and enhance the security of each port. The experiment's findings demonstrate how UDP port security on SonicWall network gear may both safeguard and reveal threats to SonicWall logs. This finding offers options to corporate network specialists so that they can safeguard themselves against data theft for the advantage of both parties.

Keywords—SonicWall, firewall, network hardware, software security, thread log

ICORIS-2023_paper_15

Predicting Factors Related to Student Performance Using Decision Tree Algorithm

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Abstract—Student performance is an important indicator of the quality of education provided by educational institutions, but it is also influenced by various other factors. Therefore, the purpose of this research is to identify learning strategies that can improve student performance by analyzing the relationship between factors such as gender, parental educational background, and test preparation on students' passing average score tests in educational institutions. In this study, the authors used the data mining method with a decision tree algorithm in the RapidMiner application. The results showed that students' chances of passing the test were strongly influenced by their participation in test preparation courses. When students take test preparation courses, the majority of them pass the test. However, when students do not take test preparation courses, other factors such as gender and parental education level influence their test performance. The results of this research can be used as a reference for educational institutions to require students to take test preparation courses so that they have a higher chance of passing the test

Keywords—student performance, data mining, decision tree, rapidminer

ICORIS-2023_paper_18

Entity Matching Analysis using SIF, RNN, Attention and Hybrid Methods for Research Article Similarity

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Abstract—When searching for scientific research articles, there is often an abundance of search results from various sources, which makes it difficult to determine the relevance between topics. This encourages the use of entity matching techniques and three deep learning methods: RNN, Attention, and Hybrid methods. We utilize a deep learning approach that combines RNN, Attention, and Hybrid models to improve entity matching capabilities. With this approach, a dataset of scientific articles based on the title, author, and keywords can be processed, and the RNN model can be used to learn the representation of those features separately. Furthermore, the Attention model is used to derive the relevant weights between pairs of features, while the hybrid model combines the results from the RNN and Attention models. In this context, the combination of RNN, Attention, and Hybrid methods can be a solution in determining relevance between scientific articles, improving efficiency, and effectiveness in research literature search. Based on the results of the analysis, the highest results were obtained in the hybrid model, with an F1 score accuracy of 51.18%.

Keywords— DeepMatcher, entity matching, research article, computer vision

ICORIS-2023_paper_20

The Influence of Knowledge, Perceived Ease of Use, Digital Business Trends, and Competition between SME on The Adoption of Financial Technology by SME

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Abstract—Fintech, or financial technology, is a system that combines finance with technology. Fintech is one of the most popular payment methods today. Some of the advantages of fintech, such as the ease of obtaining funds, are one of the factors that encourage many companies to take advantage of it, including SMEs. One of the main problems for SMEs is not meeting their financial needs. Loans from banks for SMEs are difficult to obtain because the requirements for obtaining a loan are complicated. Currently, SMEs have limited access to finance, so fintech is an alternative solution for SMEs to obtain loan funds. However, several factors hinder SMEs from adopting fintech. Thus, this study aims to determine the factors that support SMEs using fintech. The factors studied were knowledge of SMEs, ease of use, digital business trends, and competition for fintech adoption by SMEs. The research uses a quantitative approach and uses data from 123 SMEs in several cities in Indonesia, such as Jakarta, Aceh, Kendari, Medan, Tangerang, Bogor, Malang, Jambi, Bekasi, Yogyakarta, and Bandung. The collected data was processed with SPSS version 23 to see the relationship between variables. Based on the results of statistical calculations, the knowledge factor is the factor that most influences the adoption of fintech by SMEs.

Keywords—Fintech, SME, Knowledge

ICORIS-2023_paper_23

Adoption of E-Commerce with UTAUT Model Approach: A Case Study of the Millenial Generation in Jakarta

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Abstract—The E-Commerce industry has experienced significant growth in recent years. The continued use of E-Commerce to improve quality of life depends on several factors. Trust and Payment Methods have emerged as important factors influencing E-Commerce Adoption. As a result, this study examines the UTAUT factors of millennial consumers' E-Commerce Adoption in Jakarta by focusing on the mediating role of Trust and the mediating role of Payment Methods. This research uses path analysis method with quantitative approach. The research data was completed using a questionnaire with 181 millennial respondents who had made purchase transactions in E-Commerce. This research analysis tool uses SEM-PLS. This study revealed that of the six variables studied, three variables had no significant effect, but three variables had a significant effect on E-Commerce Adoption in Jakarta.

Keywords—E-Commerce Adoption, UTAUT, Millennial, Trust, Payment Method

ICORIS-2023_paper_26

Customer Clustering and Classification Based on Location and Online Store Transaction: A Case Study

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Abstract—XYZ Store is an online retailer that offers Rhea Health Tone (RHT), a supplement that helps build immune system strength. Until now, the shop has never contemplated grouping customers and distinguishing successful transactions from failed ones. The research aims to categorize consumers to determine which are purchasing RHT from local retail outlets. It is possible to create a distinction between successful and failed transactions. We have got two datasets to tackle. Tokopedia, an Indonesian marketplace, shared transaction data from its platform spanning three months and 26 days. The second dataset provides additional details, such as the outcomes of the transactions and their dates between September 2020 and June 2021. The purchase data is segmented into five data sets depending on the different locations where data is collected, and the characteristics of the customer base are determined through cluster analysis. This study will help to make market tactics more adaptable via the use of its findings. Based on the results classifications, we figured out that our data had been prepared poorly, which caused an imbalance in data. A better result, more accuracy, and a higher AUC might have been achieved had we prepared adequately.

Keywords—Online store, Clustering, Classification, K-means, Decision tree

ICORIS-2023_paper_27

Customer Segmentation Based On RFM: A Case Study in the context of Pandemic

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Abstract—Any pandemic such as Covid-19 forces government's policy to limit people's mobility. It impacted to motorcycle workshop's operational and delaying customers in maintaining their motorcycle quality. Overcoming the situation, workshop business has to choose high value of their customers to optimize their service capacity. This can be done by using customer segmentation. Using segmentation approach, it becomes easier to provide services to targeted specific people with fit offering service package. This study presents customer segmentation using Recency, Frequency and Monetary model. K-Means Clustering is used to study motorcycle customer behavior and validated using Davies Bouldin Index. The clustering result can be used to target high potential customers and deliver motorcycle service for them.

Keywords—Automotive, Aftersales, Customer Segmentation, Recency, Frequency, Monetary, Clustering, K-Means

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Audio-ased Indonesia Toxic Language Classification using Bidirectional Long Short Term Memory

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Abstract—Users are able to connect with one another via web-based internet technologies through social media platforms like Twitter. On these platforms, hate speech has become a troubling problem, when people or groups are targeted because of characteristics like color, ethnicity, gender, nationality, religion, or organization. Such information is spreading quickly as a result of the practice of using hate speech to gain fast notoriety. 80% of cybercrime prosecutions in Indonesia involve hate speech and defamation on social media, despite the fact that there are regulations like the UU ITE Law, Chapter 28, Number 2, that forbid inciting hatred or enmity on the basis of race, religion, or ethnicity. This research paper explores a novel approach to audio-based toxic language classification in the Indonesian language, leveraging key techniques including Bidirectional Long Short-Term Memory (BiLSTM), speech recognition, and natural language processing. The study focuses on identifying toxic language using a balanced dataset of 5000 entries, equally divided between toxic and non-toxic categories. This dataset was compiled from diverse sources such as NusaCrowd, Kaggle, and others, and was subsequently cleansed of emojis and symbols to maintain a plain text environment. Utilizing audio-based content analysis, the methodology involved the transcription and classification of audio data, yielding an accuracy of 95.2%, precision of 96.4%, recall of 93.2% and F1 score of 94.8% in the detection of toxic speech. The implications of this research extend beyond the academic sphere of toxic language detection, holding significant real-world application potential in areas such as content moderation for Indonesian social media platforms and toxic language detection in customer service interactions. Thus, this study addresses a critical issue of toxic language proliferation in Indonesian online communities and social media platforms, further contributing to the development of healthier digital environments in the future.

Keywords—natural language processing, bidirectional long short-term memory, speech recognition, audio-based content analysis, toxic language detection

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Branch & Bound Algorithm Implementation on Package Delivery Route

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Abstract - Due to the current growth of e-commerce, route optimization is needed to keep up with the demand and satisfy customer expectations for on time package delivery. This study is conducted to find an efficient delivery route for package delivery problems using five parameters such as delivery distance, delivery type, package durability, package size and package weight to match the real-time problem in package delivery scenario. The branch and bound algorithm were proposed in this study since it is known for solving combinatorial problems with little error especially in searching for combinations of route. The outcome of the computational result includes the optimal route sequence and numerical result of both the distance matrix and the cost matrix to provide additional explanation for the result of the cost matrix. By applying branch and bound algorithm provide an optimal route solution by prioritizing on delivering heavier, larger, and more fragile packages but still one of the shortest routes.

Keywords - Branch and Bound, Delivery Route, Package Delivery, Route Optimization, TSP

ICORIS-2023_paper_50

Automatic Captioning Environmental Sounds in Video Using Convolutional Neural Networks

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Abstract—In this day and age that is very advanced in technology, of course we are already familiar with the name of video. Whether it is watching from a website, mobile phone, cinema, television, and others. But there are some people who cannot hear the sound from the video because they have a disability and not all movies always have captions on environmental sounds. To resolve this problem we want to make an Environmental Sound Classification for Captioning using Artificial Intelligence with Convolutional Neural Network (CNN). We propose a method for this is using CNN Models and modify it to perform ESC and train the CNN Models. Our findings indicate that the CNN model is suitable for use in this study but further research is needed in order to achieve better results.

Keywords—Convolutional Neural Networks, ESC, Video Captioning

ICORIS-2023_paper_53

Sentiment Analysis of Indonesian based on E-Commerce Product Review using Decision Tree Classifier

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Abstract—The paper "Sentiment Analysis of Indonesian-based E-Commerce Product Review using Decision Tree Classifier" presents a method for analyzing the sentiment of product reviews in Indonesian language using a decision tree classifier. The authors collected data from Indonesian e-commerce websites and used it to train and test their model. The goal of the research is to improve the accuracy of sentiment analysis in Indonesian language, which is an under-researched area. The results of the study indicate that the decision tree classifier was able to achieve a high level

Keywords—Sentiment Analysis, E-Commerce Machine, Learning Decision, Tree Classifier Decision Tree

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Estimated Twitch Streamer Revenue Using Linear Regression Algorithm

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Abstract—Twitch is a well-known live streaming platform that has transformed how people interact with video games, esports, and creative arts. Twitch, which was founded in 2011, primarily focuses on gaming content but has since expanded to include music, art, talk shows, and other categories.Streamers on Twitch have the potential to earn money from a variety of sources. While exact earnings vary greatly depending on factors such as viewership, popularity, and monetization strategies, successful streamers can earn a significant income through the platform.Because of that we create a research that focuses on how much a streamer get by using Linear Regression,and also compare the method with Regression Tree to find which is more accurate.Accuracy using Linear Regression is 60.55% and using Regression Tree is 40.05%.

Keywords—Streamer, Twitch, Revenue, Linear Regression, Regression Tree, Prediciton

ICORIS-2023_paper_62

Efficiency Analysis of Brute Force and Knuth Morris Pratt Algorithms for Indonesian Keyword Search on KBBI

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Abstract—Keyword search in Indonesian in the Big Indonesian Dictionary (KBBI) is an important problem in the field of information technology, because KBBI is the main reference source in determining the meaning and significance of words in Indonesian. In the keyword search process, there are several algorithms that can be used, one of which is the Brute Force and Knuth Morris Pratt (KMP) algorithms. In this research, we will analyze the efficiency of both algorithms in searching keywords in KBBI. The Brute Force algorithm will compare each character of the keyword with each character in each word in the KBBI. While the KMP algorithm will use a table to match each character in the keyword with each character in each word in the KBBI. The method used for testing the algorithm is to use the KBBI word data set. This test will analyze the running time, memory usage, precision, accuracy, and keyword related of the two algorithms in completing the keyword search in KBBI. The result of this research is a comparison of the complexity and speed of the Knuth Morris Pratt and Brute Force algorithms. The outcomes demonstrate that while searching for keywords in the KBBI, the Brute Force approach is more effective than the KMP algorithm. The Brute Force algorithm has faster execution time, accuracy, and precision compared to the KMP algorithm, the KMP algorithm can be seeded by using less memory than the Brute Force algorithm. So it can be concluded that the Brute Force algorithm is more efficient in searching keywords in the KBBI compared to the KMP algorithm. As a result, the Brute Force algorithm can be utilized as a substitute to quicken the KBBI's keyword search process.

Keywords—algorithm, knuth morris pratt, brute force, KBBI, keyword

ICORIS-2023_paper_66

Analyzing the User Experience of Halodoc and Alodokter Users as Telemedicine Applications using UTAUT2 Modification Model

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Abstract—The emergence of Covid-19 has brought opportunities to create new things after the pandemic, one of them is telemedicine in the healthcare world. Telemedicine is a health service technology that provides remote health services in the form of consultations with doctors without meeting directly to provide diagnostic advice and guidance on patient care. In Indonesia, there are already some telemedicine services available and are in use such as Halodoc and Alodokter, both are the most used and well rated telemedicine application currently in use. The fundamental difference between the two applications is that Alodokter can only be used for scheduling appointments with doctors and cannot order medicine online. However, Halodoc can be used for both scheduling appointments with doctors and ordering medicine online with more comprehensive features. This study aims to understand and analyze the factors that influence the adoption and use of technology by users and user perceptions, testing it using a questionnaire with the UTAUT2 model which explains consumer understanding of variables in information technology. We conducted a User Experience Questionnaire survey using Google Form for easy distribution among our respondents.

Keywords—Alodokter, Halodoc, Health Care, Mobile Health Application, Telemedicine, Telemedicine Applications, User Experience, UTAUT2 Modification Model

ICORIS-2023_paper_67

The Blockchain Model for Drug Management to Increase The Transparency of Drug Distribution and Drug Authenticity

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Abstract—Drug distribution is a very complex process that involves various parties, starting from the pharmaceutical industry, drug distributors, pharmacies, drugstores, and customers. The drug distribution network is very broad and involves many parties, making it difficult for customers and related parties to obtain transparent transactions in the drug distribution network as well as information about the authenticity of the drugs that customers will consume. On the other hand, blockchain technology offers features that can increase transaction transparency, so that blockchain can be a solution to drug distribution problems. Thus, the aim of this research is to build a blockchain model to increase the transparency of transactions between parties involved in the drug distribution network and provide information on guaranteeing the authenticity of medicines for customers. The research method uses a qualitative approach through a literature review to identify problems related to drug distribution. Literature review is also used to study conventional drug distribution mechanisms to find out the root causes of the drug distribution process. The output of the research is a model for adopting blockchain technology to increase the transparency of drug distribution transactions.

Keywords—drugs distribution, blockchain, transparency

ICORIS-2023_paper_68

Cargo Logistics with Blockchain Technology in The Flight Industry : Conceptual Model

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Abstract— Shipping cargo via airlines is one of the services provided by airlines to send goods or cargo over long distances in a short time. The complexity of the delivery process arises because of the many parties involved, which may be spread across several different countries. This condition demands coordination and transparency at every stage of the shipping process. The low transparency of transactions and the lack of a system that can trace the whereabouts of the goods being sent are crucial problems faced by shipping cargo via airlines. On the other hand, blockchain technology can provide high levels of transparency with the concept of peer-to-peer validation. Thus, the purpose of this research is to help the aviation industry improve transparency and traceability for cargo shipments. The research method uses a quantitative approach through a literature review to find problems in shipping cargo via airlines. A literature review is also used to study the mechanism of cargo delivery via airlines using a conventional system. The result of this research is a blockchain technology model to increase transparency and traceability of cargo shipments via airlines.

Keywords— flight industry, cargo logistic, blockchain technology

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Elevator System Usage Efficiency: Applying Human Detection Monitor using Computer Vision approach

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Abstract— An efficient elevator system that has good security is a very important system to apply to high-rise buildings. The use of elevators is arguably a necessity in accelerating a person's desire to get to the desired floor, especially in a rustic building, to be sure that time is precious there. What they call time is money, so they don't want the elevator system to be able to keep up with it. Therefore, this paper was created to increase the efficiency of elevator systems using a computer vision approach. This system will later be proposed using camera-based settings that can be monitored using real- time monitors. The camera will also be designed to detect more accurately with batons such as YOLO (You Only Look Once), and Motion Detection. The accuracy that we got, the highest one is at 50.0% while the lowest is 16.57%, on this research we're using YOLOv3 which is a bit outdated, maybe in further research we can reach a higher and more optimal system.

Keywords—elevator system, computer vision, YOLO, Human Detection, Facial Recognition, Motion Detection

ICORIS-2023_paper_77

Text Vectorization Techniques for Trending Topic Clustering on Twitter: A Comparative Evaluation of TF-IDF, Doc2Vec, and Sentence-BERT

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Abstract— In this digital era, where technology is rapidly advancing, social media has become a primary platform for obtaining and disseminating information. Knowing what is being widely discussed and trending on social media is crucial for important aspects such as politics, economic, social and cultural issues. The objective of this research is to perform clustering on texts or sentences, and within each cluster, identify the most influential keywords that can serve as parameters to determine the topics being discussed in each cluster. Twitter was chosen as the social media platform to be analyzed in this research due to its text-based nature. The clustering method used is DBSCAN, considering that the number of clusters is unknown, and three text embedding techniques to be compared, namely TF-IDF, Doc2Vec, and Sentence-BERT. The performance of clustering with different text embedding techniques were evaluated using the silhouette coefficient. Hyperparameter tuning has been done to find the best-performing hyperparameters. From the best-performing technique, topic finding within the resulting clusters was conducted using Latent Dirichlet allocation (LDA). The results of this research indicated that clustering with DBSCAN and TF-IDF, with the highest silhouette coefficient, namely -0.00001, produced one cluster and 3342 outliers. DBSCAN and Doc2Vec, with the highest silhouette coefficient, namely 0.71590, produced one cluster and one outlier. DBSCAN and Sentence-BERT, with the highest silhouette coefficient, namely -0.02425, produced two clusters and two outliers. Based on the research findings, smaller silhouette scores tend to have a more varied number of clusters. DBSCAN with each tested text embeddings showed that the topic for every cluster, except for the first cluster of DBSCAN that use Sentence-BERT, were COVID-19 related topic. The DBSCAN and Sentence-BERT model, despite having a lower silhouette score, successfully identifies two separate clusters with distinct topics, whereas the other models only identify a single cluster.

Keywords—clustering, vectorization, TF-IDF, Sentence-BERT, Word2Vec

ICORIS-2023_paper_79

Digital Innovation Approach for Stunting Knowledge and Awareness Development in Society

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Abstract—Stunting, a lasting consequence of malnutrition poses a significant obstacle to child development and overall well-being. Hence, addressing this issue becomes crucial for achieving the Sustainable Development Goals, particularly the Zero Hunger ambition. This paper focuses on the Indonesian context, aligning efforts to combat stunting with the country's development agenda. Moreover, it aims to raise awareness among individuals who remain uninformed about the truth regarding stunting, often mistakenly associating it with hereditary factors. Utilizing digital technology on several platforms and developing an Artificial Intelligence model by using the decision tree algorithm approach can be a fairly effective method for achieving that objective. Specifically, the decision tree will separate data based on certain attributes by forming branches that represent recommendations that must be made based on experienced malnutrition. Through an informative social media and website that provide information and features about stunting, which evolved by that method, it turns out to be a step that is quite helpful in increasing public awareness. This is because it allows rapid information dissemination by reaching a much wider audience. By increasing public awareness about stunting, this will make a contribution to positive changes in nutrition practices and efforts to overcome stunting in Indonesia.

Keywords— digital, hereditary, technology, nutrition, public, stunting

ICORIS-2023_paper_80

Accuracy of Comparison Random Forest, Gradient Boosting Tree, Decision Tree, and Na¨ıve Bayes Algorithms in Predicting the Size of Companies Where Data Scientist Works

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Abstract—Therefore, this research discusses the comparison of accuracy between machine learning algorithms such as Na¨ıve Bayes, Decision Tree, Random Forest, and Gradient Boosting Tree for data scientist salary data in predicting the size of the company where they work. This research method involves data from the Kaggle platform. The data includes attributes such as salary paid in the year, salary currency, employee type, company location, job title, salary in USD, experience level in the year, salary, employee residence, company size, and remote ratio. The results of this study show that the three algorithms which is Random Forest, Decision Tree, and Gradient Boosting Tree, have a high level of accuracy compared to Na¨ıve Bayes in predicting the size of the company where data scientists work. However, the performance of Random Forest is less optimal due to unbalanced data which results in the results of Random Forest being less accurate than Decision Tree. A high level of accuracy can affect the classification results so that the better the accuracy level, the better the classification results. Meanwhile, Gradient Boosting Tree obtained excellent accuracy results from the three machine learning algorithms. The conclusion of this research is that Gradient Boosting Tree and Decision Tree can be a good choice to predict the size of the company where data scientists work. However, it is important to ensure that the data is balanced so that the Random Forest algorithm can run more optimally.

Keywords—Random Forest, Decision Tree, Na¨ıve Bayes, Gra- dient Boosting Tree, and Data Scientist.

ICORIS-2023_paper_81

Stock Price Prediction of PT Industri Jamu dan Farmasi Sido Muncul Tbk by Using Machine Learning Algorithm

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Abstract— investors face a number of risks that need to be seriously considered when they decide to purchasing shares in a company. In order to make smarter investment decisions, investors rely on data that is analyzed and predictive using various technical indicators that are recorded daily. One of the public companies that offers its shares to investors and is listed on the Indonesia Stock Exchange PT Industri Jamu dan Farmasi Sido Muncul Tbk with the issuer code SIDO. SIDO's stock price movements are influenced by a variety of complex factors, including quarterly earnings reports, market news, and behavioral changes.To assist investors in making better decisions, this research uses machine learning algorithm techniques such as ANN (Artificial Neural Network) with backpropagation method, LSTM (Long Short-Term Memory), and ARIMA (Autoregressive Integrated Moving Average) to predict SIDO stock price movements before making a purchase. Historical data of SIDO stock sales is the main data source in this study. The results show that the ARIMA algorithm provides the best performance with an RMSE (Root Mean Square Error) error rate of 0.45251. By utilizing machine learning technology, investors can benefit from sophisticated predictive analysis to gain deeper insights into SIDO's stock price movements. This helps them to reduce risk and increase potential profits in their investments. This research aims to provide guidance to investors interested in PT Industri Jamu dan Farmasi Sido Muncul Tbk, so that they can make smarter and more informed investment decisions. By using a machine learning algorithm approach, investors have the potential to increase their investment success and optimize their portfolio in the long run.

Keywords—Stock, Stock market prediction, Machine learning, Artificial Neural Network, Backpropagation, LSTM, ARIMA

ICORIS-2023_paper_83

Implementation of Letter Detection Algorithm using OCR for People with Special Disabilities

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Abstract—In this world, there are many people who have difficulties in communicating such as people with dyslexia and speech impairments. Communicating with other people becomes difficult for dyslexics and speech impairment because of their limitations in reading and writing as well as abnormalities in pronunciation and articulation. To help them, we have created an application called Bagivert by compiling an algorithm based on Optical Character Recognition (OCR) and Text to Speech (TTS) system which was developed using the Python programming language. OCR can convert text from image to editable text which is done using the Tesseract-OCR and pytesseract libraries whereas TTS can convert texts to speeches using gTTS and pyttsx3 libraries. Using the datasets containing 50 data of both actual alphabets and handwritten alphabets, shown that some data especially cursive handwriting can't be translated correctly. Calculation stated the translation accuracy is only 80%. Future research may focus on developing the implementation of Text-to-Speech (TTS) using the Optical Character Language (OCR) algorithm more especially in terms of its accuracy to capture either low quality picture or unusual handwritten texts and fonts.

Keywords—Optical Character Recognition,Text to Speech, Dyslexia, Speech impediment, Visually impaired

ICORIS-2023_paper_84

Classification of Heart Disease: Comparative Analysis using KNN, Random Forest, Gaussian Naive Bayes, XGBoost, SVM, Decision Tree, and Logistic Regression

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Abstract—The heart is the center of the human body, and when it is not functioning well, the body cannot operate effectively. This research aims to compare some of the classifier models to find the best model for classifying heart disease by its symptoms for early detection, so users will be able to know whether their symptoms belong to a type of heart disease that requires them to undergo a check-up or not to carry out early heart disease detection. The classifier models used in this research are K-NN, Random Forest, Naive Bayes, XGBoost, SVM, Decision Tree, and Logistic Regression algorithms. As for the results, the Logistic Regression model shows the best result with its metrics on average being 92.61%, and the second best result was achieved by Gaussian Naive Bayes with its metrics on average being 90.78%, while the other models results were below 90%. So, this research shows that Logistic Regression is the best model to classify heart disease for early detection because of its higher results than other classifier models.

Keywords—Heart Disease, K-NN, Random Forest, Naive Bayes, XGBoost, SVM, Decision Tree, Logistic Regression

ICORIS-2023_paper_85

Cyberbullying Detection: An Investigation into Natural Language Processing and Machine Learning Techniques

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Abstract—Cyberbullying has been a concerning issue ever since the Internet and smartphones became very popular. There are several Cyberbullying types such as videos, images, text, and audio, but the most common occurrence of cyberbullying is through hate speech and offensive language via text message. Making it a suitable task for application of Natural Language Processing (NLP). Social media which includes various platforms like Instagram, Facebook, and Twitter plays a big part in this matter, as it is the medium for communication that has often been the home of hate speech. Many researchers have taken an initiative to generate a tool in detecting cyberbullying. This paper provides a comparative study using several deep learning algorithms such as BERT (Bidirectional Encoder Representations from Transformers), Bi-LSTM (Bidirectional Long Short-Term Memory), and Bi-GRU (Bidirectional Gated Recurrent Unit) in detecting tweets containing cyberbullying. Preprocessing is included in this study, followed by tokenization and embedding. The evaluation of these models focuses on accuracy, precision, recall and F1-Score, which measure their ability to correctly classify different types of cyberbullying from a dataset of tweets. Furthermore, this study also used a confusion matrix as part of the evaluation process. In our study, we found that the BERT model outperformed the BiGRU BiLSTM model in terms of accuracy, achieving about 96%. Followed by Bi-LSTM and Bi-GRU obtained accuracy of 95% and 94% respectively. The result of this comparative analysis indicates all three models exhibit strong performance, while the BERT model had a higher ability to correctly classify cyberbullying instances.

Keywords—Cyberbullying detection, Natural Language Processing, Machine Learning, BERT, Bi-LSTM , Bi-GRU

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Classifying and Predicting The Rating Sentiment of Women's E-commerce Clothing Reviews: A Comparative Study Using SVM, ANN, and BERT Models

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Abstract— Product reviews are crucial for both customers and sellers in determining the quality of certain products. Alongside the review, the rating is also provided to give insight into the overall point of the product. As the review often becomes a consideration for a customer when buying a product online, the review needs to give an objective viewpoint. Therefore, it is important to determine whether the review is reliable. This could be seen both from the rating given by customers and the sentiment of the review. Machine learning and deep learning methods can be applied to classify the review sentiment effectively. The main objective was to check whether the review was considered positive or negative. The review was provided from women's clothing e-commerce by Nicapotato, which is available on Kaggle. This paper used both SVM and ANN for machine learning methods and BERT for deep learning method to determine the best method for the given dataset by identifying the most reliable and accurate model for classifying reviews. For the text vectorization, SVM and ANN models used TF-IDF technique while BERT model used sentenceBERT. The best method was determined quantitatively by comparing each model's accuracy and F1 Score results. Based on the accuracy and F1 Score result, it turned out that using TF-IDF for text vectorization with ANN gave the best performance compared to other models.

Keywords—product reviews, rating, sentiment, SVM, ANN, BERT

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The Blockchain Technology's Adoption by Research and Manuscript Publication in Higher Education : Conceptual Model

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Abstract—The adoption of blockchain technology has penetrated almost all sectors, including the education sector, especially higher education. Regardless of the pros and cons of adopting blockchain technology, the application of blockchain has the potential to provide benefits to higher education. Some previous research describes the adoption of blockchain technology in higher education to maintain the authenticity of diplomas, build symbiotic relationships with industry, and others; this research proposes the adoption of blockchain technology for research and publication in higher education. The high level of research and publication plagiarism is one of the main problems that initiated this research. Thus, the aim of this research is to help higher education improve research and publication supervision using blockchain technology. The literature review method is used to support this research. The proposed model is built from the conventional mechanism for distributing research results and publications in higher education and then combined with the basic principles of blockchain technology. Research also uses literature reviews to study articles about previous research and publications to strengthen the novelty of models developed because of this research. At the end of the results and discussion, a table is presented with examples of data using blockchain for the publication of manuscripts.

Keywords—blockchain, higher education, research, publication

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Factors Influencing The Use of E-Ticketing for Land Transportation Travel in Indonesia

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Abstract—Land transportation is one type of transportation that is widely used in Indonesia. Accessibility, flexibility, low cost, etc. are the reasons for the high land transportation rates in Indonesia. On the other hand, the development of information technology provides opportunities for increasing effectiveness and efficiency in land transportation, one of which is the application of electronic tickets, or e-tickets. The problem statement of this research is an effort to increase the use of e-tickets for land transportation by knowing the factors that influence the adoption of e-tickets for land transportation trips. The results of the research are useful for land transportation companies that use e-tickets. The research used a quantitative approach by taking 104 e-ticket user respondents from several regions in Indonesia, such as Java, Kalimantan, and Sumatra. This research analyzes the ease of use, flexibility, information availability, and security of the adoption of e-tickets to support people's journeys using land transportation. The data that was successfully collected was processed with SPSS using several tests. Based on the results of data processing, it shows that ease of use and security factors affect the use of e-tickets for land transportation. Meanwhile, the factors of availability of information and flexibility do not affect land transportation passengers using e-tickets. From the results of this research, e-tickets created by transportation companies should pay attention to the factors of ease of use and security.

Keywords—e-ticketing, ease of use, flexibility, information availability, security

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Analyzing Customer and User Preferences on Messenger as A Platform in Indonesia

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Abstract— Today's communication that takes place in short messages and in fast time is a result of the development of advances in internet and smartphone technology. This makes companies that build applications, competing to develop instant messaging applications in a fast time. Competition in the use of messengers and use in a business environment, is unavoidable. So many companies that build applications experience obstacles and lose in competition. This situation became the main concern of the researcher. The purpose of study is to analyse customer and user preferences on messenger as a platform using a qualitative method in Indonesia refers to the development of the IS Success Model indicator. This research method uses a qualitative approach to find symptoms when using the platform as a messenger for users and customers. The primary data used in this research uses in-depth interview techniques to collect data from informants who come from customers and users. The informant data is mapped to find the answer of preferences for using messenger as a platform which is analyzed using Miles and Huberman interactive data analysis. The result from this research is a usage preference for Platform as Messenger that considered customer and user. For the customer preference, aspects that need to be considered for development are accessibility, flexibility, effectiveness, and additional chat history. Meanwhile, for the user preference, factors that need to be considered consist of responsiveness, user-friendly appearance, performance personal needs, personal data privacy and security, and excellent service.

Keywords— Messenger, Platform service, Platform messenger, Customer preference, User preference

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AI-based Study Program Concentration Selection Using Ensemble Learning Algorithms

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Abstract— Choosing a concentration is often complicated and confusing, especially when students face many options. In addition, the class distribution problem in the dataset shows that it is unbalanced, where the minority class has very little representation compared to the majority class. Therefore, to assist students in choosing a concentration according to their abilities, this study developed a recommendation model for selecting a study program concentration using a combination of multiclassifiers and, in this study, using Ensemble Learning type of Voting with hard Voting. The algorithms to be combined are the Support Vector Machine, Decision Tree, and Random Forest classification methods. The SMOTE technique is used to generate synthetic samples for the minority class, aiming to increase the number of pieces and expand the representation of the minority class. Then, the performance of each ensemble learning algorithm is evaluated using relevant evaluation metrics, such as Accuracy, Precision, Recall, and F1-score. Experimental results show that combining SMOTE technique and classification methods can significantly improve classification performance on unbalanced datasets. The classification results obtained the best accuracy with the SMOTE technique, namely the Random Forest classification, with 93% accuracy and 82% without SMOTE. For the Decision Tree classification with the SMOTE process, the accuracy obtained was 84%, and without SMOTE, 75%, then the SVM classification with the SMOTE technique got an accuracy of 78%. And the method without SMOTE is 77%. Then, the Ensemble Voting classification with SMOTE process obtained an accuracy of 90%, and the process without SMOTE was 80%.

Keywords—Machine Learning, SMOTE, Ensemble Learning, Program Study

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Implementation of Convolutional Neural Network to Minimize Wildlife-Vehicle Collisions

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Abstract—Wildlife-vehicle collisions (WVCs) have serious consequences for both humans and especially the wildlife that surrounds us. It is therefore imperative to address this issue in order to preserve the ecosystem. We propose a real-time animal detection model utilizing You Only Look Once (YOLO) v8, which is based on Convolutional Neural Network. The dataset for this research is obtained from the Roboflow and consists of 1,239 images of various wild animals captured by trail cameras. To facilitate the training and evaluation process, the dataset is divided into 866 images allocated for training purposes, 247 images for validation, and 126 images for testing. Post-training evaluation of the model demonstrates excellent performance in detecting animals in various scenarios, achieving mAP of 0.829 (at IoU of 0.5) and an impressive speed of approximately 133.99 frames per second. Although the results are suitable for real-time animal detection, further research may be required to ensure the successful execution of the model by training it over a more diverse dataset and hardware specifications.

Keywords—wildlife-vehicle collision, artificial intelligence, Convolutional Neural Network, You Only Look Once, Single Shot Detector

ICORIS-2023_paper_103

The Application of CNN Algorithm for Facial Recognition in Train Station Queues

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Abstract—Facial recognition technology has gained popularity in recent years, with applications in various industries, including security and surveillance. Train stations, being high-traffic areas, require advanced security measures to ensure the safety of commuters. In this paper, we propose the use of Convolutional Neural Network (CNN) algorithm for facial recognition in train station queues. The CNN model is trained using a dataset of facial images collected from a train station. The proposed system is capable of accurately detecting and recognizing faces in real-time, with a high degree of precision and recall. Our experiments show that the proposed system outperforms existing facial recognition systems in terms of accuracy, speed, and robustness. The results of our study demonstrate the potential of CNN algorithm in enhancing the security measures of train stations, thereby providing a safe and secure environment for commuters.

Keywords—Facial recognition, Convolutional Neural Network, Train station

ICORIS-2023_paper_104

Genre Based Music Classification Using K-Nearest Neighbor

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Abstract—Digital music has rapidly evolved in this era. As a result, listening to music is no longer an uncommon activity, as nowadays, everyone is likely to listen to music in their daily lives, such as when they study, work, sports. Because of rapid evolve, it makes musics is one of the most popular things in the world. It has many derivatives, genres, and distinct types that have different auras and moods. The music nowadays is constantly evolving, and users find it increasingly difficult to find music choices that suit their preferences, known as the paradox of choice. In this research, we aim to solve various problems faced by music listeners using a machine learning-based music classification. The purpose of this research is to create a reliable model that can take a song from any plalist and sort them into either mood, genre, artist, years. The model is also expected to help listeners broaden their music knowledge and explore genres they may like, ultimately leading to the development of their music preferences. So, This research will perform song classification based on genre using the K-Nearest Neighbor (KNN) algorithm. The dataset we use for the KNN algorithm has parameters such as energy, danceability, loudness, acousticness, and so on. The classification showed promising results with an average accuracy of 85%. And then genre jazz gets perfect accuracy which is 100%, pop genre with 81%, EDM genre with 92%, and rock genre with 67% accuracy. Then, an assessment evaluation was conducted using a confusion matrix calculation, which resulted in an accuracy rate of 85%. Additionally, we performed cross-validation evaluation, which yielded an accuracy rate of 78.12%.

Keywords—Machine Learning, Music, Classification, Genre, K-Nearest Neighbor

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The influence of Behavioral Intention of using PayLater Apps on Consumptive Behavior moderated by Financial Literacy

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Abstract—The widespread usage of mobile phones has become a big trend that has changed human contact during the last few decades. As the usage of digital wallets has grown, marketplace provider such as Shopee, have included the Pay Later feature to their digital wallets. Although it provides a solution, this method has a negative impact on impulsive purchasing behavior. The Pay Later system delivers a one-click buying experience that encourages customers to buy instantly. Excessive consumption is one of the drawbacks of adopting Pay Later. Consumptive behavior occurs when the purchasing actions are motivated by desires rather than needs. Financial literacy is the activity required to curb pay later service users' emotional demand and prevent them from making unwise decisions. The purpose of this study is to investigate the factors that influence students' intentions to use Shoppe Pay Later apps, as well as the impact of behavioral intention on consumption behavior, utilizing financial literacy as a moderating construct. The Modified UTAUT Model was used to sample 185 respondents from Jakarta and its surrounds (JABODETABEK), and the results were analyzed using (PLS-SEM). According to the findings, perceived trust, personal efficacy, social influence, performance expectancy, and effort expectancy all have significant influence on behavioral intention; behavioral intention has a significant influence on consumptive behavior, whereas financial literacy significantly moderates the relationship between behavioral intention and consumptive behavior

Keywords— Modified UTAUT Model, Behavioral Intention, Financial Literacy, Consumptive Behavior, Pay Later Apps

ICORIS-2023_paper_119

The Impact of Hyperparameter Tuning in Convolutional Neural Network on Image Classification Model: A Case Study of Plant Disease Detection

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Abstract—Image Classification is one of the most popular uses of artificial intelligence. Deep Learning methodology with Con- volutional Neural Networks is found to be one of, if not the most accurate, way to classify images, with Xception and DenseNet architecture at the forefront of the performance metrics. Yet, the accuracy of those same models can still be improved by using an optimum hyperparameter tuning, namely, the AiSara tuning algorithm. This research contributes significantly to the field by assessing the impact of hyperparameter tuning on deep learning models in detecting various plant diseases. The datasets used are PlantVillage and PlantDoc, each representing a different image structure for the algorithm to train and test. Importantly, this research demonstrates that hyperparameter tuning on both CNN architectures achieved approximately a 2- 3% increase in accuracy compared to normal iterations. These findings highlight the practical utility of hyperparameter tuning in improving disease detection models and advance the field of image classification in agriculture.

Keywords—Image Classification, Deep Learning, Convo- lutional Neural Network, DenseNet, Hyperparameter Tuning, Xception, AiSara, Plant Disease Classification

ICORIS-2023_paper_121

Collaborative Filtering for Steam Games Recommendation

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Abstract—This research explores collaborative filtering with Singular Value Decomposition (SVD) and Pearson correlation to provide game recommendations on the Steam digital distribution service dataset. Collaborative Filtering aims to leverage user preferences to identify similar gaming patterns. This can be done through SVD and Pearson correlation algorithms. SVD reduces the dimensionality of the game rating matrix, while Pearson correlation measures the similarity between users and games. The proposed method generates personalized recommendations based on user preferences and opinions of similar gamers. Evaluation metrics include Mean Average Error (MAE) and Root Mean Square Deviation (RMSE). Results demonstrate the effectiveness of CF with SVD and Pearson correlation in delivering relevant and personalized game suggestions on Steam based dataset.

Keywords—Collaborative Filtering, Steam Games, Rec- ommendation, Singular Value Decomposition (SVD), Pearson Correlation

ICORIS-2023_paper_126

Analysing the Impact of Robot, Artificial Intelligence, and Service Automation Awareness, Technostress and Technology Anxiety on Employees's Job Performance in The Foodservice Industry

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Abstract—The service industry has undergone a significant transformation due to the development and use of technology in daily operations. The use of technology in the food and beverage industry not only adds value but also allows businesses to accommodate the changing demands and tastes of their customers. However, the usage of technologies has negative consequences, such as technostress and anxiety associated with their use. With the growing impact of technology, there has been a surge in studies examining its effects on employee performance. This research aims to investigate the impact of technology, Robot, Artificial Intelligence, and Service Automation (RAISA) awareness, technostress, and technology anxiety on employee's job performance. The present study employed a quantitative methodology. Questionnaires are distributed to all study participants as a means of collecting data. The study focuses on fast-food restaurant employees in the Jakarta area. Using the snowball sampling technique, the researchers utilize their personal connections with fast-food restaurant employees and ask them to share the questionnaire with their work colleagues. In total, there were 147 respondents who successfully completed the survey. The findings of the study found that RAISA awareness positively influences technostress, technology anxiety, and the job performance of service employees in a fast-food restaurant. In contrast, the study found that technology anxiety negatively influences the job performance of service employees in a fast-food restaurant. Likewise, it also suggests that technostress negatively influences the job performance of service employees in a fast-food restaurant. The findings of this study are expected to contribute to the literature of adoption of smart technology and its impact on employees' job performance.

Keywords—technostress, technology anxiety, service automation, smart technology, job performance

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The Impact of AI-enabled Chatbots Adoption on Customer Loyalty in the Foodservice Industry

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Abstract—Chatbots are transforming how businesses interact with customers and promote customer loyalty. Using natural language processing and AI-enabled technology, chatbots provide customers with an automated, personalized, and intuitive experience that offers convenience and fast responses. The adoption of chatbots is still relatively low at the time in Indonesia. The main reason for this is that many of these people have yet to become accustomed to this type of technology. As a result, the plan to use this technology is still in the preliminary stages at this point. It is yet unknown whether implementation of technology can influence a consumer's loyalty. This study aimed to examine the impact of chatbot adoption on customer loyalty in the food service industry. One hundred ninety-five people were surveyed to test the suggested hypothesis. The results of the analysis of the data showed support for each of the hypotheses that were proposed. The research found that client trust in chatbots affects online travel agent buying intent. The study found that chatbot usefulness positively affects customer loyalty. The study also found that chatbot usefulness positively affects customer loyalty. Lastly, the research found that perceived effectiveness positively influences customer loyalty. Our findings are crucial for food service businesses and other service companies because they show that customers with a good chatbot attitude are more loyal to the company. Lastly, the result of our study aims to contribute to the literature that focuses on the adoption of chatbots in the tourism and hospitality industry.

Keywords —chatbots, Artificial Intelligence, foodservice, smart technology

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Decision Support System for Distribution Of Financial Assistance To Flood Victims

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Abstract— Business Intelligence can be used in making decisions about the distribution of aid for victims of post-flood disasters. Analysis carried out with the help of Business Intelligence can also help in efficiently planning the allocation of financial assistance. The stages in this study include clustering the severity of flooding from DKI Jakarta Provincial Flood Event Recapitulation Data, using the K-Means Clustering method. Furthermore, ranking is carried out to get the order of giving the amount of assistance using Weighted Product, Simple Additive Weighting, and TOPSIS. This research produces a decision support system that can be used in the process of distributing aid to locations affected by floods and even other disasters. The evaluation of the DSS (Decision Support System) results involves comparing the rankings generated by the system with the rankings based on the actual ground truth factors. The WP method obtained an MSE of 20.00, an RMSE of 4.47, an MAE of 20.00, and a MAPE of 1.31% with a very accurate category. The TOPSIS method obtained an MSE of 10.73, an RMSE of 3.28, an MAE of 10.73, and a MAPE of 1.32% with a very accurate category. Whereas the SAW method obtained an MSE of 20.37, RMSE of 4.51, MAE of 20.37, and a MAPE of 1.22% with a very accurate category.

Keywords— DSS, Weighted Product, SAW, TOPSIS, flood

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Decision Support System for Distribution Of Financial Assistance To Flood Victims

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Abstract—Indonesia has a tropical climate with erratic weather changes. It is necessary to conduct a study to predict rainfall as a decision making on weather information that will occur in the future. Rainfall is one of the factors that cause changes in weather in an area. This research was conducted on the climate in Semarang which is part of the Central Java region with geographical and topographical conditions in the form of mountains and lowlands which cause changes in rainfall. Variables that are used as parameters and affect rainfall are temperature, humidity, wind speed and length of sunlight. These variables are processed using data from BMKG Semarang. The data were analyzed in this study to find out the comparison of research results with pre-existing data. The research was conducted using the Multiple Linear Regression and K-Nearest Neighbor comparison algorithm by making the rainfall data as the dependent variable and other parameters as independent variables. This study uses climate data from the BMKG Semarang Station for the period January 2021 to June 2023. The evaluation was carried out with the aim of estimating the magnitude of the prediction error value for total rainfall per month against observational data for total rainfall for that month so that rainfall levels can be predicted in the next six months. Realization of the actual rainfall data is 17.8886, the amount of actual data is compared with the results of the evaluation using the Linear Regression equation the MAE acquisition value is 16.59 and calculations using the K-NN algorithm MAE = 18.75.

Keywords —Rainfall, Prediction, Parameters, Linear Regression, K-NN

ICORIS-2023_paper_137

Machine Learning-Based Classification of House Prices: A Comparative Study

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Abstract— This research investigates the problem of house price classification using various machine learning methods, including Random Forest, Gradient Boosting Machines (GBM), XGBoost, Logistic Regression, and K-Nearest Neighbors (KNN). The best performing method for house price classification is Random Forest, achieving an R2 value of 85.32% and an AUC of 0.93 according to the ROC evaluation. The results demonstrate Random Forest's effectiveness in handling non-linear and complex datasets, while o ther methods such as GBM, XGBoost, Logistic Regression, and KNN also show competitive performance. This study guides house price classification modeling and supports accurate decision-making in the house market context.

Keywords— house, price, classification, AUC

ICORIS-2023_paper_138

Assessing the importance of dynamic features of academic performance using machine learning models during distance education caused by COVID-19

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Abstract—In this work, we perform an analysis of the impact of transition to the distance learning format caused due to the COVID-19. During the critical period of the pandemic, profound transformations have transpired in the sphere of education, necessitating a reconfiguration of the traditional teaching and learning methods. Due to the imperative of ensuring safety and minimizing the spread of the virus, students have been compelled to refrain from physical attendance at educational institutions, leading to their separation from teachers and peers. Current study is based on an extensive dataset, containing the academic grades of school students during 2016-2020 academic years, extracted from the database “Electronic Education in the Republic of Tatarstan”. Explainable artificial intelligence (XAI) method is commonly applied for estimation feature importance, allowing the evaluation of each analyzed feature impact on the output of machine and deep learning models. The data analysis and interpretations were performed by using machine learning and deep learning algorithms, and by using modern XAI framework SHAP, on the aggerated datasets containing quarter’s and month’s mean grades for 3 consecutive years for 4 school subjects. As a result, we measured subjects’ importance for quarters and months scale that make the greatest contribution to the forecast of academic performance after distance learning beginning.

Keywords—data science, machine learning, deep learning, academic performance, SHAP, feature importance.

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Integrated Attendance System using NFC Technology

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Abstract—This research aims to design and develop prototype for an integrated attendance system for University classes in this case the Universitas Klabat (Unklab) is chosen are the object of our research. The technology that we adopt is the Near Field Communication (NFC) wireless technology which enables the transfer of data and information between adjacent devices. The main reason we choose this technology is because most of the smart devices such smartphone and etcetera are being supported by NFC, hence any plugging device for RFID reader are no longer being needed since the NFC technology is being provided. This designed system is expected to aid and simply the complexity of the process for checking the student attendance in every classes so that the process will be more accurately, efficiently, and can reduce the risk of doing cheating or any kind of unwanted actions performed by the students against their classes absences. This research was conducted using the Prototype Process Model as the research method. The programming technology that we use are the Java Script, HTML, and CSS, as the programming language. To support the data collection we adopt the Firebase technology as for cloud computing database. The result of our research is the integrated attendance system using NFC that can be used by lecturers in a University.

Keywords—Attendance, NFC, Prototype Process Model, Java Script, RFID, Firebase, University

ICORIS-2023_paper_141

Optimizing Server Monitoring: Web-Based Application for System Operations

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Abstract—The LocalAM application is an application used to manage and optimize local assets on the server. In this study, several weaknesses were identified in the development of web-based tools to collect information from servers, where there is no solution that fully meets the existing needs. The results of this application research and development effort indicate that the system implementation plan that had been prepared previously had been successfully executed. The LocalAM application is able to efficiently retrieve various important parameters such as delivery load, memory usage, disk I/O activity, and network on the server. In addition, this application has been successfully built and can be accessed through the website platform using access authentication, which makes it easy for users to access and use it. The findings from the study also show that this application works well and provides great benefits to users in carrying out data collection and server monitoring tasks. In addition, this study states that the LocalAM application has succeeded in filling the gaps in the server data collection process with a web-based approach.

Keywords—Server technology, server monitoring, website-based applications, system operations, server monitoring effectiveness

ICORIS-2023_paper_144

MML Mixture Modelling of Rainfall Data

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Abstract—Rainfall is an important part of people daily life, especially farmers. Agriculture, and also tourism, have been affected greatly by rainy season. As the climate changes, the chance of rainfall amount to change gets higher. Several studies have been performed regarding rainfall data including studies on rainfall model as well as clustering of regions based on rainfall data. However, assumption used in the studies is that the data comes from one class population. This paper reports a study conducted on rainfall data with assumptions that rainfall pattern changes and its data can come from several class populations. The class population is also assumed to come from several distributions including Gamma, Gaussian, and Student t distributions. In developing the model, the Minimum Message Length (MML) principle is applied for both parameter estimation and model selection processes. The result shows that rainfall data comes from a one class Gamma distribution model. None of the classes has chosen Gaussian and Student t distributions as their class models. The model with a gamma value less than 1.0 is better fit with a less message length = 1076.329 bits compared to that with a gamma value greater than or equal to 1.0 with a message length = 1086.851 bits. The results also show that MML slightly performed better compared to Akaike Information Criterion (AIC) and Schwarz's Bayesian Information Criterion (BIC), in terms of the probability bit-costings calculated from the modelling of sampled data. This shows that the uncertainty region involved in the MML modelling accommodates the unseen existing data better.

Keywords —rainfall, minimum message length, mixture modelling, Gamma, Gaussian, Student t, AIC, BIC

ICORIS-2023_paper_149

Requirements Analysis for Risk Communication Systems with Design Thinking in Mining Operations

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Abstract— Risk communication in mining operations currently does not fully integrate safety management systems with user-centered communication platforms. Existing research has shown that the design of risk communication systems has not been sufficiently optimized using mobile technology. This study proposes a draft procedure for the design thinking method to deepen the needs analysis and optimization of user-centered system design engineering. The design thinking stage was developed with a conceptual design method that categorizes data sources from three levels of employees: management, supervisors, and field operators. The interim results of this research present the design of survey procedures with an empathy map, data analysis with a user journey map, and a 5-stage scenario test for data validation. The limitation of the research is the technique of developing seven blocks of empathy map questions with the AEIOU framework that can generate more than 35 comprehensive questions that are difficult to understand by employees at the field operator level.

Keywords— Risk Communication, Requirements Engineering, Design Thinking

ICORIS-2023_paper_150

Multimodal Approach for Painting Price Prediction

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Abstract— The art market's subjective and unpredictable nature has led to a growing interest in predicting the prices of paintings using machine learning models. This study aims to explore a multimodal approach combining CNN, BERT, and regular NN to predict painting prices based on diverse inputs, including image, text, and categorical data. The dataset was collected from Sotheby's art marketplace website, consisting of various features such as image, dimensions, movement, period, material, condition, and price. Results from the model evaluation show that the multimodal approach outperformed single-modal models, achieving a MAPE loss of 30.66% and an MAE loss of 3348.73. The integration of numerical, categorical, image, and text data enhanced the model's ability to capture the complexities involved in painting valuation. The positive impact of the multimodal approach lies in its ability to enhance prediction accuracy and capture the relation of many factors affecting painting prices, ultimately providing valuable insights and tools for the art market.

Keywords— Multimodal, CNN, NLP, Art, Price prediction

ICORIS-2023_paper_152

Combination of Stacking with Genetic Algorithm Feature Selection to Improve Default Prediction in P2P Lending

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Abstract—Lending Club has become a popular P2P lending platform in America and has increased with a total loan of $13.4 billion in 2015. However, the development of the P2P market with online-based intermediaries allows for credit risk arising from defaults that can directly harm investors and threaten the development of P2P platforms. This study aims to determine a classification method that has the best accuracy for predicting credit risk, which reduce the emergence of risk in P2P lending practices. The method applied is data collection from the Lending Club platform, followed by preprocessing stage that applies the one-hot encoding method to handle categorical data and random oversampling to balance the data classes. The proposed classification method is a stacking ensemble combining three single classifiers, LightGBM, XGBoost, and Random Forest as a base learner. GAFS is also proposed as a feature selection method to get predictive attributes or features. The findings suggest that prior to implementing the GAFS (Genetic Algorithm Feature Selection) technique, the stacking ensemble learning achieved an accuracy of 98.05%. However, after incorporating GAFS, which identified 11 relevant features, the accuracy improved to 98.97%. From the accuracy results, it show an increase of 0.92%. Thus, the stacking method based on the result features of GAFS has demonstrated superior accuracy in predicting the risk of default on P2P loans.

Keywords— Credit Risk, Loan Default, Peer-to-peer, Stacking, GAFS

ICORIS-2023_paper_154

AI-powered Chatbot for Information Service at Klabat University by Integrating OpenAI GPT-3 with Intent Recognition and Semantic Search

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Abstract— The rapid advancement of Artificial Intelligence (AI) in recent years has transformed numerous sectors, including information services. This study introduces Unklabot 1.0, an innovative AI-powered chatbot specially designed and proposed for information services at Klabat university. Unklabot 1.0 was developed to take advantage of an advanced large language model (LLM), namely OpenAI GPT-3 (text-davinci-003), and integrate it with intent recognition and knowledge-based context understanding using semantic search technique to provide accurate and efficient question answering capabilities about Klabat University. To enhance Unklabot's performance, intent recognition is integrated into the Unklabot system. Moreover, this intent recognition helps identify the purpose behind user queries, allowing the chatbot to understand user intentions more accurately. Furthermore, semantic search technique is employed to enhance the capabilities of the Unklabot by understanding the meaning behind user queries and retrieve information in external knowledge based on the closest context or chunk. Utilizing OpenAI GPT-3 API, Unklabot can processes natural language inputs, providing comprehensive and contextually relevant answers to user inquiries. This research successfully implemented the OpenAI GPT-3 API in information services, offering a valuable tool to increase the engagement of AI usage in educational institutions such as Klabat University.

Keywords—chatbot, artificial intelligence, unklabot, machine learning, large language model, openai gpt, intent recognition, semantic search, chroma database.

ICORIS-2023_paper_161

Classification of Student Graduation Using Backpropagation Neural Network with Features Selection and Dimensions Reduction

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Abstract—Students' graduation is a very important thing in universities as a determinant of the quality of a university. To improve the number of student graduates, a university must know the factors that affect students and classify student graduation. The efforts that can be made to detect student graduation are by predicting student graduation early on using data mining. The data mining technique used is using feature selection techniques with Mutual Information and Chi-Square, then dimensional reduction with PCA which will later be classified using BPNN. The dataset in this study is data on graduates of the Information Systems Study Program for the 2013-2022 academic year which contains 7 attributes with 38 questions. The 7 attributes are GPA, Total Credits, Taking FP Course on 7th Semester, Number of Repetitive Courses, Procrastination, Confidence, and Disciplin. The best experimental results can be obtained in BPNN classification with Mutual Information feature selections with 100% accuracy and RMSE 0 at a learning rate of 0.005 with a maximum iteration of 1000. While the results of the attributes that greatly affect student graduation are procrastination, discipline, confidence, and total credits.

Keywords— BPNN, chi-square, mutual information, PCA, dimensions reduction, features selection

ICORIS-2023_paper_164

Analysis and Technologies for the MyECO Office Workspace Lighting System

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Abstract—Designing a building requires considering both natural and artificial illumination. However, this needs to be remembered, as shown, for instance, in the workstation of the myECO office. An Internet of Things (IoT) start-up called MyECO places a high priority on environmental sustainability. Computers and laptops are frequently used by staff members in this office. It may be inferred that the myECO office workstation needs a relatively high light intensity with a cool white color temperature. This study aims to evaluate the myECO office workstation lighting system and offer solutions. Analyzing a case study object is one of the qualitative procedures used in data collection strategies. Through the use of pertinent papers and direct interviews, as well as the Lightmeter and DIALux Evo applications, descriptive data is gathered. The outcomes demonstrate that the produced light intensity is still subpar. The temperature is within the acceptable range. According to the length of the space, a solution is provided by adding two horizontally positioned bulbs that are comparable.

Keywords —Start Up, Office, Interior, Smart Lighting, Dialux

ICORIS-2023_paper_170

Impacts of IT Strategic Alignment and IT-enabled Dynamic Capabilities on Online Businesses

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Abstract—The lack of measurable and obvious IT strategic alignment, inadequate focus on customer experiences, absence of linkages between businesses and IT, weak IT-enabled dynamic capabilities, and unresponsiveness are commonly identified factors contributing to the failure or difficulty of companies in establishing online businesses. Furthermore, a restricted range of work establishes a connection between the alignment of information technology (IT) strategies and the development of IT-enabled dynamic capabilities while considering the impact of IT governance systems on organizational agility. The research aimed to validate and determine the degree to which the alignment of IT strategy and the existence of IT-enabled dynamic capabilities had a favorable impact on the organizational agility of online businesses. The research methodology used for this research was convergent triangulation, utilizing an explanatory design incorporating follow-up explanations. The sample population consisted of organizations operating online businesses in West Kalimantan, Indonesia, with a minimum operational experience of five years. A total of 258 respondents completed the questionnaires. The data collected was processed using Likert scales. The data underwent additional analysis using Structural Equation Modeling-Partial Least Squares (SEM-PLS). The findings indicate that the alignment of IT strategy has a significant and positive effect on the agility of organizations, achieved through the utilization of IT-enabled dynamic capabilities. On the other hand, the impact of IT-enabled dynamic capabilities on the organizational agility of online businesses is found to be insignificant.

Keywords—IT Strategic Alignment, IT-enabled Dynamic Capabilities, IT Governance Mechanisms, Organizational Agility

ICORIS-2023_paper_172

Development of the 2Gather Mobile Apps and its Analysis of The Tourism Sector's Potential

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Abstract—Traveling will be more enjoyable if one has friends who regularly share vacation moments with them. Aside from that, it can be a fantastic opportunity to learn new skills such as language, and local culture. This research aims to fulfill the needs of solo travelers, which is travel-social platform that connects users to meet and socialize, allowing them to make friends while traveling throughout Indonesia. The research was conducted out through a combination of structured workflow and development tools. to be able to develop and build a mobile site that is organized and easier, we need to implement what is called “Software Development Life Cycle” or SDLC in early development. In this research, People's desire to travel has been indirectly triggered by the emergence of the phenomenon of revenge traveling because of the Covid-19 pandemic. Furthermore, the current trend in people's vacation styles has shifted to the point where they feel more confident when traveling in groups because tourists are looking for new travel experiences while staying within their budget. Nonetheless, they face difficulties, such as the difficulty of making new friends who share their interests and dream destinations. To address this issue, 2Gather has launched a travel-social platform where users can meet, socialize, and make friends all over Indonesia, allowing them to travel together in a safe, comfortable, and enjoyable experience. 2Gather leave no stone unturned to give our user the best functionalities in the app.

Keywords—Mobile site, Travelling, Travel-Social Platform, Vacation Styles

ICORIS-2023_paper_173

Developing Mobile-Based Sports Match Charts and Scoring for an Effective Match Analysis

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Abstract—The rapid development of technology in Indonesia and around the world, especially in web and mobile (mobile-based) software, has led to many small businesses or companies developing their operations using web and mobile-based software. The sports field is also beginning to develop software to support and make activities more transparent, such as VAR technology in football and badminton. Many competitions in Indonesia still use manual methods to record match scores and conduct draws for match charts, leading to suspicions of cheating by the organizing committee in the match chart draw. Based on these issues, the researcher will conduct a study on how to implement automatic scheduling and match charts with random participant selection using the cluster random sampling method and integrated match evaluation. In this research, the research team will focus on a case study in badminton and implement it using web and mobile (Android) technology. A prototype approach will be used in this study, where the development and testing of the working model (prototype) of the application will involve iterative interactions with the competition committee and continuous improvements until it meets the users' needs. The results of this research can serve as a reference for software development in Indonesia to achieve efficiency in the process of creating web- and mobile-based software.

Keywords— automatic scheduling badminton, competition, match

ICORIS-2023_paper_176

Analysis of Factors Influencing the Buyer Preferences on Goods and Services: Comparing E-commerce and Retail Stores

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Abstract—E-commerce is a term which defines businesses and or individuals doing transactions through the internet and is frequently compared to physical and brick and mortar stores due to the former offering much needed convenience and usefulness to its customers. E-commerce is continually being developed to better perform its tasks with more people adopting their use, especially during the Covid-19 pandemic by purchasing goods without physical contact and without worry of lockdowns and being affected by the novel virus. The chosen research methodology and tools are listed in the form of quantitative research by using a google forms survey with questions asking people about preferences of shopping with e-commerce or physical markets and whether they find ordering goods from e-commerce has some usefulness assigned to it and whether they can easily learn how to use and browse an e-commerce store. A research model based on the TAM framework was designed to guide the study and make some survey questions based on the model. Four alternate and null hypotheses were made for the study of finding out whether people would rather shop in e-commerce or physical stores as well as finding possible factors and benefits allowed and granted by e-commerce that makes people want to use them more. Through descriptive analysis of the question results in the form of graphs alongside average value and standard deviation calculation of likert scale questions which is displayed in the form of tables, most people order food online, see most provided benefits of shopping with e-commerce, see that e-commerce is fairly easy to use and that not many people buy clothing goods online. Instrument testing performed on likert scale survey questions show middling Cronbach alpha and KMO values. Not enough statistically significant evidence in support of alternate hypotheses, meaning all null hypotheses were accepted.

Keywords—quantitative research, partial least square, structural equation model, factor analysis, customer preference analysis

ICORIS-2023_paper_178

Autism Spectrum Disorder Detection through Facial Analysis and Deep Learning: Leveraging Domain-Specific Variations

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Abstract—Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder with significant implications for both individuals and society. Early detection of ASD is crucial for effective intervention and support. This study focuses on detecting ASD using facial analysis and deep learning techniques. The primary objective is to leverage domain-specific variations by employing four different Convolutional Neural Network (CNN) architectures, including VGG16, ResNet50, SE-ResNet50, and MobileNetv2. Unlike previous research that uses the ImageNet dataset, our models are pretrained on the specialized VGGFace2 dataset. This approach enables them to capture subtle facial variations and granular, face-specific features. We compared the performance of our models with their counterparts based on the same architectures. Experimental results demonstrate that our models consistently outperform the existing methods in terms of various metrics, including test accuracy and the Area Under the Curve (AUC). Specifically, the VGG16 model achieved a test accuracy of 0.86 and an AUC of 0.86, surpassing the performance of other studies. Similarly, the ResNet50 and MobileNetv2 models demonstrated superior performance compared to their counterparts in previous research. These findings highlight the effectiveness of leveraging domain-specific variations in facial analysis for ASD detection.

Keywords —Autism Spectrum Disorder, Deep Learning, Convolutional Neural Networks, Pre-trained Models, Face Images
VGG16, ResNet50, SE-ResNet50, MobileNetv2

ICORIS-2023_paper_179

Analysis of Sentiment and Stock Price Using Web Scraping and Vader Sentiment Analysis: A Case of Bank Mandiri Indonesian Stock

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Abstract—This paper aims to investigate the correlation between the Bank Mandiri stock using data scraped through public news and implementing VADER analysis within the process of finding sentiment scores, with the goal of having results in the correlation of news sentiments with historical stock market price data. The goal is to uncover the relationship between news sentiments towards real historical stock price movements. Web scraping techniques are implemented in order to have data for the sentiment analysis model to analyze the sentiment of news data. The news gathered is specific to the stock in question which is Bank Mandiri. This data undergoes preprocessing before it is then analyzed using VADER sentiment analysis model. The results of this sentiment analysis model is a weak positive correlation when analyzed using Pearson's and Spearman's correlation coefficients. The positive news sentiments showed an alignment with upwards in stock pieces, which indicates a bullish market trend, while on the other hand negative sentiments equates to downwards movements within the stock price, which reflects a sentiment that is bearish.

Keywords—web retrieval, stock price dynamics, sentiment data analysis, time series forecasting

ICORIS-2023_paper_182

Designing Women's Safety Application for Emergency Situations

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Abstract—Women's safety is a serious issue in Indonesia, where women endure harassment and violence in public spaces. This paper proposes the design of a mobile application for women's safety in emergency situations. The application aims to prevent violence such as kidnapping and sexual assault by providing location sharing, communication feature, and loud SOS (Save Our Souls) alarm. The authors used quantitative for this research method. The novelties of this research are application can send emergency message and location by SMS in real time. The location sent is in the form of a link that is integrated with Google Maps. Furthermore, the alarm with max volume won't stop until user clicks stop button. The authors conducted an initial survey to gather requirements for the application design and decide which features to include. The design is specifically made for emergency situations, including button placement and features that only need one tap to activate. The authors implemented the design and concluded that the features can assist women in emergency situations. The survey results shows that safety applications can make women feel safer and validate the importance of the application

Keywords—emergency response, mobile, smartphone, women's safety

ICORIS-2023_paper_183

Developing Accurate Prediction Model Using Machine Learning and Business Intelligence on University Students GPA

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Abstract—It has been challenging to determine students' grades and performances throughout college. The purpose of this study is to raise students' performance during each semester and guarantee satisfactory course completion with the use of accurate prediction model for student GPA. The process is using the dataset of student GPA in the first year of university as an input for the machine learning model. Then, using the dataset to develop prediction models such as Linear regression, Decision Tree, Fully Dense Neural Network and MLP. Lastly, results are evaluated using the proper evaluation measures. This research provides an accurate prediction model with the use of Machine Learning Algorithms for predicting Students GPA.As it happens, the linear Regression Model has the best result with 0.1396 on the MSE and 0.3736 on the RMSE. By doing so, Students can then view their GPA to determine and strategize on how they might raise it in the upcoming semester as well as for academic advisor to give more accurate strategy and actions to the students to obtain a good study performance. Because graduates who have high GPAs can start their professions off well and have big opportunity in the foreseeable future.

Keywords —student performance, prediction, machine learning, artificial neural network, decision tree

ICORIS-2023_paper_185

Predict Student Performance with Machine Learning method: A - Review

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Abstract—Educational institutions allocate a lot of effort and important resources to influence, predict, and understand students' decisions in choosing their educational path. Leveraging student data and achievement with the help of machine learning to predict student academic success will make a significant contribution to all parties involved in devising appropriate strategies to support students. This review shows the performance of machine learning in classification for predicting student academic success.There are four algorithms for predicting student's academic success Knn, Naïve Bayes, Logistic Regression, SVM, and Decision Tree. In addition, this Review uses data that divides student's academic success rates into two or three categories, such ad pass/ fail or fail/ pass/ excellent.

Keywords —machine learning, Academic institutions, Classification, Student learning success.

ICORIS-2023_paper_186

Comparison Analysis of YOLO, ResNet, and EfficientNet for contagious skin diseases

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Abstract—YOLO, Resnet, and EfficientNet are all CNNs that are widely used for image classification, and detection with each one having their own unique architecture. In this study we are comparing the aforementioned CNN by training classification models of skin disease. Monkeypox skin images dataset skin disease image data was used as the training material. The dataset consists of images of monkeypox, chickenpox, measles, and normal control. Our analysis found that YOLOv5n have the highest accuracy of 0.942 with with training time of 1.204 hours.

Keywords — Image classification, AI, Resnet.

ICORIS-2023_paper_187

Decoding Acute Lymphoblastic Leukemia: Insights from Convolutional Neural Networks and Pretrained Model

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Abstract—Accurate detection of Acute Lymphoblastic Leukemia (ALL) is essential for prompt diagnosis and effective treatment. In this study, we introduce a deep learning method employing Convolutional Neural Networks (CNNs) and pretrained models to enhance the precision of ALL detection. We leveraged a dataset comprising blood cell images for training an validation. Performance evaluations of three CNN models—ResNet-50, VGG16, and a bespoke CNN architecture—were conducted using metrics like accuracy, loss, and validation scores. Our findings reveal that VGG16 achieved a notable accuracy of 96.53%, while our custom CNN yielded 88.15%. Notably, VGG16, despite its high accuracy, exhibited signs of overfitting. In contrast, ResNet-50 underperformed, registering an accuracy of just 79.05%. This work underscores the potential of technological innovations in healthcare, especially in ALL diagnosis, and paves the way for more in-depth exploration of deep learning in cancer detection.

Keywords —Convolutional Neural Networks (CNNs), Acute Lymphoblastic Leukemia (ALL), Image recognition, ResNet-50, VGG16

ICORIS-2023_paper_188

Implementation of The C4.5 Algorithm in Expert Systems to Identify Potential Interests and Talents

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Abstract—To develop self-efficacy in children, they need to know the potential of their interests and talents so that they can know themselves more deeply, understand how to develop their potential, motivate themselves to continue to do their best, and even find the right learning style so that they do not experience difficulties or feel lazy while studying. Selecting interests and talents through manual processing with paper forms is subjective and less efficient due to the time-consuming data processing. The C4.5 algorithm is utilized to form an expert system in this study. A decision tree is built by selecting an attribute as a root and creating a branch for each value. The cases are then divided into branches. This process is repeated until all cases on each branch belong to the same class. Applying some of these concepts to the expert system can increase the accuracy and reliability of determining students' interests and talents in the future.

Keywords —Expert system, Artificial intelligent, C4.5 Algorithm

ICORIS-2023_paper_189

Optimized Risk Scores for Early Detection of Bipolar Disorder Based on Crowdsourced Text Data

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Abstract—Bipolar disorder is a chronic mental health disorder characterized by periodic manic or depressive episodes with high rates of recurrence and non-recovery. Early intervention for bipolar disorder is critical to prevent progression and complications that lead to societal loss. We build interpretable prediction models based on crowdsourced mental health symptoms that can be used as a tool to early detect bipolar disorder. The symptoms gathered through the crowdsourcing process are in the form of free texts. We first extract a list of features using natural language processing techniques to convert free texts into binary features representing mental health symptoms. Based on these features, we create an optimized risk score for detecting bipolar disorder which is formulated as a mixed-integer non-linear programming problem. Besides having a good performance, the proposed model is interpretable allowing for the stakeholders to easily understand how each symptom contributes to the detection of bipolar disorder. This early detection tool can be used as the first decision process to recommend further examination for the final diagnosis of bipolar disorder.

Keywords —bipolar disorder, crowdsourcing, interpretable machine learning, risk scores, optimization, natural language processing

ICORIS-2023_paper_190

Enhancing Facial Expression Recognition through Ensemble Deep Learning

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Abstract— Facial Expression Recognition (FER) represents a captivating and challenging field, perpetually under exploration for the development of advanced techniques. This study aims to improve accuracy and performance in FER by developing an ensemble model based on fine-tuning the VGG19, MobileNet, and DenseNet, and applying concatenate techniques in the context of complex FER tasks. The research methodology involves a series of data preprocessing steps, building an ensemble model, and implementing the Softmax activation function. Tests were carried out on the CK+ datasets, then comparing the results to other transfer learning approaches. The experimental results show the outstanding performance of the CK+ dataset. Furthermore, the proposed model was also tested on the Fer+ dataset and demonstrated its ability to adapt to different data variations and distributions. Although it requires a longer training time, this ensemble model outperforms other transfer learning approaches in FER accuracy. With significant implications, this study provides an essential contribution to the development of ensemble models with concatenate techniques that have the potential to improve accuracy and performance in FER tasks. By providing valuable insights, this research paved the way for the evolution of a FER model that is adaptive and effective in dealing with variations in facial expressions and diverse environmental conditions.

Keywords— Facial Expression Recognition, Ensemble Learning, Fine-tuning, Concatenate Technique

ICORIS-2023_paper_192

Design and Implementation of Chatbot for New Student Registration Information Using Sequence Matcher Algorithm

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Abstract— In an educational institution, the efficient handling of new student enrolment plays an important role in the service of interacting and consulting with prospective pupils or parents who need information. However, Klabat University's customer service has some barriers such as lack of knowledge about campus information in detail, service according to working hours and so on so that it takes more time to handle it if many questions come in simultaneously. The aim of this research is to address the problems experienced by Klabat University's customer service. The provision of information is maximized, the researchers aim to create an application to help prospective new students get information from the customer service as a chatbot on mobile devices that contains information about the registration of new students at Klabat University. Customer service can have a support tool in the delivery of information. This research presents the design and implementation of an innovative chatbot. By leveraging the Sequence Matcher algorithm, the chatbot aims to help new students acquire the information they need. The integration of the sequence matcher algorithm allows it to identify the most relevant information and provide the most accurate responses without any human typewriting errors. This research has produced an Android chatbot app and a web application that can be used by the Admin to manage questions and view the chat history of users who are logged in.

Keywords— Customer service, information service, chatbot, sequence matcher algorithm.

ICORIS-2023_paper_193

Unraveling Genetic Complexity: Fine-tuning Machine Learning Models for DNA Sequence Analysis with K-mer Size

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Abstract—In the realm of genetic analysis, the utilization of machine learning models holds great potential for unraveling the intricate complexities of DNA sequence data. This study delves into the realm of DNA sequence analysis by employing k-mer representations and fine-tuning machine learning algorithms to discern optimal performance. Four prominent algorithms, namely K-Nearest Neighbors (KNN), Naïve Bayes, Random Forest, and Support Vector Machine (SVM), are harnessed to decode genetic information. The investigation begins by exploring a range of k-mer sizes, from 1 to 10, to determine the most suitable value for the specific dataset. For KNN, the optimal number of neighbors and weighting scheme are identified through hyperparameter tuning. Naïve Bayes leverages an alpha parameter to refine its performance on k-mer data. Random Forest harnesses estimators and maximum depth settings for efficient decision tree ensembles. SVM, on the other hand, is optimized by calibrating the C and gamma parameters. Performance evaluations encompass accuracy, precision, recall, and F1-score metrics, underscored by detailed confusion matrices for comprehensive insights. The findings unravel the genetic complexities within DNA sequences, accentuating the strengths and optimal configurations of each model. This study furnishes a roadmap for selecting robust models and hyperparameters, thus enriching the field of genetic analysis and augmenting the understanding of DNA sequence intricacies.

Keywords —classification, DNA, sequence, fine-tuning, k-mer, machine learning

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Classification of Soil Fertility Level Based on Texture with Convolutional Neural Network (CNN) Algorithm

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Abstract— This study aims to classify the level of agricultural soil fertility based on texture. This study proposes a new approach to categorizing soil fertility levels based on soil texture using the Convolutional Neural Network (CNN) algorithm. The data is divided into three parts, with a percentage of 80% training data for 1120 images and 10% for each test and validation data for 140 soil images with a data size of 224x224 pixels. Several trials have been conducted by tuning the learning rate, optimizer, batch size, and augmentation. The results show that using the Adam optimizer, learning rate 0.001, batch size 8, and augmenting the dataset produces the best accuracy of 94.24% at best epoch 73. This research shows that by tuning the CNN parameter, it can classify the level of agricultural soil fertility based on its texture.

Keywords— CNN Algorithm, Image processing, Paddy soil, Soil fertility

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Multi-Label Age Classification of Indonesian Song Lyrics using Deep Learning

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Abstract—In today's music landscape, ensuring the appropriateness of song lyrics for different age groups is paramount due to the prevalence of mature themes. This study focuses on classifying Indonesian song lyrics into three distinct age categories: "Dewasa" (Adult), "Remaja" (Adolescents), and "Anak-anak" (Children). The motivation behind this research is to safeguard young listeners from exposure to unsuitable content. The study employs a dataset of 4000 songs, collected from prior research efforts, to meticulously train and evaluate various models. Deep learning techniques are explored, with specific attention given to three different neural network designs: Bidirectional Long Short-Term Memory (LSTM), Convolutional Neural Network (CNN), and Simple Recurrent Neural Network (RNN). Training involves a data split of 80% for training and 20% for validation and testing. Notably, the Bidirectional LSTM model exhibits remarkable performance, achieving an accuracy of 98% in effectively categorizing lyrics by age. Following closely, the CNN model attains an accuracy of 96%, displaying its capacity to differentiate between age groups. Conversely, the Simple RNN struggles to capture intricate relationships, resulting in a 60% accuracy.

Keywords —Indonesian song, lyrics, the age of listener, deep learning, text classification

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Quality Analysis of Decision Support System Determine Best Campus in Bangka Belitung Province Using Webqual 4.0

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Abstract—The purpose of further study of prospective students is often a separate problem for these prospective students. There are several aspects that affect it, starting from quality of the campus, tuition fees, campus accreditation, the facilities, and the performance. To solve these problems, a web-based decision support system was built that can be used by prospective students to assist decision making. Furthermore, this study aims to analyze the quality of the website. Quality analysis is carried out so that the website built can provide user satisfaction in its use. The analytical method used is Webqual 4.0 which consists of three instruments, namely Usability, Information, and Interaction. There were 31 sample data which were processed using SPSS 26 through validity testing, reliability testing, descriptive analysis and linear regression tests. The results of the test is the instrument used were proved to have a significant role in user satisfaction using the website.

Keywords—Decision Support System, Quality Analysis, User Satisfaction, Webqual 4.0

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Dynamic Programming Algorithm using Furniture Industry 0/1 Knapsack Problem

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Abstract—Dynamic programming is a fundamental algorithm that can be found in our daily lives easily. One of the dynamic programming algorithm implementations consists of solving the 0/1 knapsack problem. A 0/1 knapsack problem can be seen from industrial production cost. It is prevalent that a production cost has to be as efficient as possible, but the expectation is to get the proceeds of the products higher. Thus, the dynamic programming algorithm can be implemented to solve the diverse knapsack problem, one of which is the 0/1 knapsack problem, which would be the main focus of this paper. The implementation was implemented using C language. This paper was created as an early implementation algorithm using a Dynamic program algorithm applied to an Automatic Identification System (AIS) dataset.

Keywords—Dynamic programming, 0/1 knapsack problem, Optimization methods, Optimization Problem, Optimization

ICORIS-2023_paper_202

IoT for Water Quality Categorization

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Abstract— In agricultural water research, the adoption of Internet of Things (IoT) technology has emerged as a pivotal approach for large-scale data collection. Water availability in the context of water quality is very important, both for domestic and industrial purposes. For domestic purposes, drinking water and bathing water are separated. Meanwhile, for the palm oil industry, boiler filler is differentiated from additional process water (dilution water). Water quality parameters can be assessed from turbidity and Total Dissolve Solid (TDS). Measurements using measuring instruments separately and repeatedly require significant energy, time, and costs. This research was conducted with the primary objective of presenting a novel method for categorizing water quality with the approach of IoT sensor technology. The research methodology entailed the utilization of an integrated IoT water sensors system in conjunction with manual water categorization. The methods consist of (1) system design, (2) design and installation of sensor and IoT-based microcontrollers, and (3) accuracy and precision testing compared with laboratory measurements. The precision of the integrated IoT water sensors was assessed through a dedicated sensor precision test, resulting in an accuracy rate of 94.4% for the turbidity sensor and 97.5% for the TDS sensor. Notably, this approach successfully discriminated drinking water with valid categorization, while other water types, including groundwater, water with tea, and water with coffee, yielded null categorization results.

Keywords— Internet of Things, water quality, water sensors, data categorization

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Security System To Prevent Terrorism Actions Using Face Recognition In Worship Building

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Abstract— Worship activities are essential things that need to be done by every religious community in Indonesia. This activity is carried out in places of worship that need to be respected and guarded to create a sense of security for people who worship and make worship activities run smoothly. However, the problem of acts of terrorism that have recently occurred in places of worship threatens the sense of security that exists in people when they carry out worship activities. From the problems found, researchers designed a security system in places of worship using face recognition technology. The method used in this research is the prototype model. Data is collected by conducting interviews and literature studies. Researchers will use deep learning algorithms such as MTCNN and ResNet to develop a security system that uses face recognition. The result of the research is a security system in places of worship that can monitor near the entrance of places of worship to reduce the possibility of acts of terrorism in places of worship.

Keywords—security system, face recognition, deep learning, ResNet

ICORIS-2023_paper_207

Enhancing Monkeypox Disease Detection Performance: A Transfer Learning Approach for Accurate Image Identification

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Abstract—In 2022, Monkeypox emerged as a significant public health concern in over 50 countries. With symptoms and manifestations resembling chickenpox and measles, differentiating Monkeypox from other pox diseases poses a considerable challenge. Due to its heightened fatality risk, there is an urgent need for a rapid and accurate Monkeypox detection model. To address this issue, a web-based system incorporating a transfer learning-enabled model capable of detecting Monkeypox, and other diseases was developed, aiming to facilitate prompt public actions in case of positive infection. This research focuses on utilizing transfer learning methods, specifically Convolutional Neural Networks (CNNs) such as VGG and EfficientNet, as sample models for evaluation. The research assesses the suitability of these models in learning and detecting Monkeypox disease. The findings indicate that the EfficientNetB1 model demonstrates the highest suitability for Monkeypox detection, achieving an impressive accuracy rate of 96.99%. These results underscore its readiness for integration into the web-based system. Overall, this study highlights the significance of leveraging transfer learning techniques, specifically the EfficientNetB1 model, to enhance the accuracy and efficiency of Monkeypox detection. The successful integration of this model into the web system showcases its potential in facilitating timely interventions and mitigating the spread of Monkeypox.

Keywords—monkeypox, transfer learning, vgg, efficientnet, convolutional neural network

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Heuristic Behavior Model for Investor Decision in Cryptocurrency Online Trading

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Abstract— In the era of industry 4.0, cryptocurrency has become an alternative investment instrument besides the capital market, stocks and bonds. Cryptocurrency offers quite tempting benefits even though there are also big risks in it. Wrong decision making can result in investment losses. This is what made us compile research on how heuristic behavior factors influence investors' decision making in investing in cryptocurrency. Research objective is to find factors affecting investor decision in cryptocurrency online trading. Our research uses a quantitative method, we collect data by distributing questionnaires to investors on major cryptocurrency brokerage forums. We gather data from as many as 235 respondents. Our data analysis uses structural equation modeling partial least squares and the software we use is Smart PLS 4. The results of our research find that availability bias, representativeness bias, anchoring and adjustment have a significant effect on investors' decision to invest in cryptocurrency, while overconfidence bias has no significant effect. (Abstract)

Keywords—cryptocurrency, heuristic, behavior, investor, decision

ICORIS-2023_paper_209

Comparison of Machine Learning Models for Classification of DDoS Attacks

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Abstract— Distributed Denial of Service (DDoS) is one of the major threats for security networks and systems. The DDoS attack is flooding a network with huge packets to weaken the performance of the network. The ability to accurately and classify these attacks is crucial for mitigating the security problem. In this paper, machine learning models are compared in a classification task for detecting benign (normal) and DDoS attack traffic. This paper used 14 different popular classifier models. The models are trained and tested by using 'DDoS Dataset' from Kaggle which is the extraction from public IDS Datasets which captured in different years from 2016-2018. The experiment result shown that all the models have good scores in precision, recall, and F1 score with Random Forest algorithm shown the best result at 100% accuracy.

Keywords—DDoS, Machine Learning, Classification

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Application for the Active Selection of New Members of UKM Niphaz Diploma Club with the Fuzzy Tsukamoto Method

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Abstract—In the Niphaz Diploma Club organization, Dipa University Makassar, there are problems that are often encountered in assessing the selection of new members who still use conventional methods or ask for opinions from the Daily Governing Body (BPH). So that in this study the authors designed and built an application that could be used directly by the Daily Governing Body in facilitating the selection of new members each year. The Tsukamoto Fuzzy method is a method that is used to assist in giving recommendations quickly and focuses on rules in the form of IF-THEN which are represented by Fuzzy sets with monotonous membership functions, as well as the criteria and rules used to determine the final result. From the results of the comparison of the value of the output set in the passing decision fuzzy set is greater than the failure decision fuzzy set. So, the decision that can be taken is that the member can be declared passed and vice versa, if the fuzzy set of decisions that do not pass is greater than the fuzzy set of decisions that pass. then, a decision can be taken that the member is declared not passed. Tests were carried out on 15 new members of UKM Niphaz Diploma Club data who had been assessed and obtained the final results in the application of the Fuzzy Tuskamoto method. in the assessment of obtaining the final result in the application of the Tuskamoto fuzzy method, namely regarding the selection decision on the activity of new members: If the value of z = 65 then the degree of fuzzy membership in each set is: Fuzzy set that passes = 0.619047619, Fuzzy set does not pass = 0.380952381 So , the decision taken was that a new member on behalf of Fadhlur Rohman Dzaki Akbar with STB 213011 was declared PASSED.

Keywords—Selection, Fuzzy, Tsukamoto, Application

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