Beyond Intelligence
AI for a Changing Planet

2024

BEYOND INTELLIGENCE: AI FOR A CHANGING PLANET

26TH–27TH OCTOBER, 2024
BEIJING, CHINA

Organized by: **IFERP Academy**

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Explore Your Research Journey...

Beyond Intelligence: AI for a Changing Planet-2024, Beijing, China

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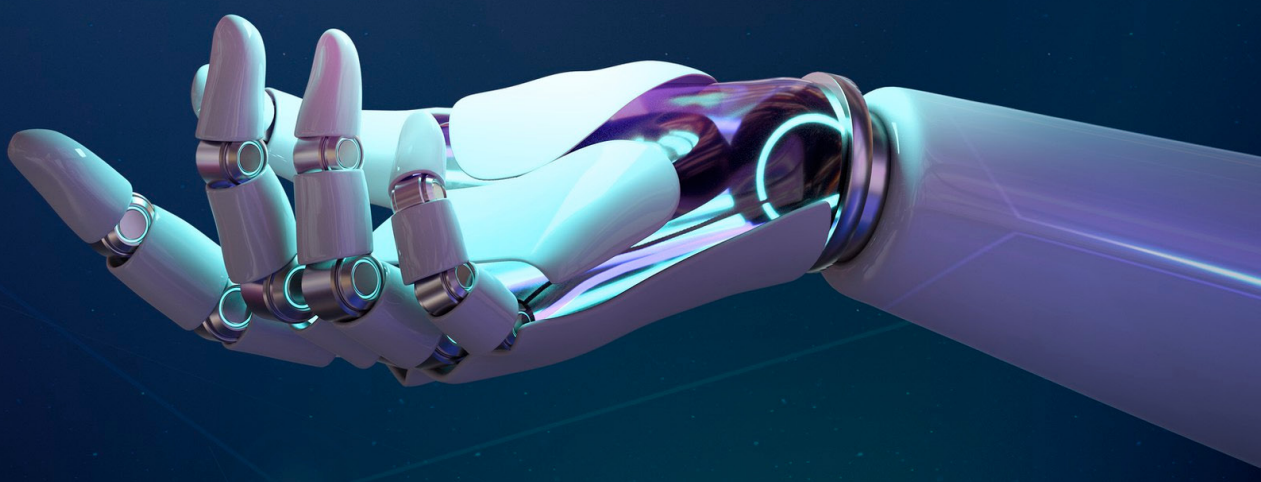

Conference Theme

AI'S ROLE IN SOLVING GLOBAL CHALLENGES

PREFACE

We are delighted to extend a warm welcome to all participants attending "Beyond Intelligence: AI for a Changing Planet" organized by IFERP Academy on October 26th-27th, 2024 at Ramada by Wyndham Beijing Airport, Beijing, China. This conference provides a vital platform for researchers, students, academicians, and industry professionals from all over the world to share their latest research results and development activities in the field of AI & Its Applications. It offers delegates an opportunity to exchange new ideas and experiences, establish business or research relationships, and explore global collaborations.

The proceedings for "Beyond Intelligence 2024" contain the most up-to-date, comprehensive, and globally relevant knowledge in the field of AI & Its Applications. All submitted papers were subject to rigorous peer reviewing by 2-4 expert referees, and the papers included in these proceedings have been selected for their quality and relevance to the conference. We are confident that these proceedings will not only provide readers with a broad overview of the latest research results in AI & Its Applications but also serve as a valuable summary and reference for further research in this field.

We are grateful for the support of many universities and research institutes, whose contributions were vital to the success of this conference. We extend our sincerest gratitude and highest respect to the many professors who played an important role in the review process, providing valuable feedback and suggestions to authors to improve their work.

We also extend our appreciation to the external reviewers for providing additional support in the review process and to the authors for contributing their research results to the "Beyond Intelligence 2024". Since May 2024, the Organizing Committees have received more than 100+ manuscript papers, covering all aspects of AI & Its Applications. After review, approximately 30+ papers were selected for inclusion in the proceedings of "Beyond Intelligence 2024". We would like to thank all participants at the conference for their significant contribution to its success.

We express our gratitude to the keynote and individual speakers and all participating authors for their dedication and hard work. We also sincerely appreciate the efforts of the technical program committee and all reviewers, whose contributions made this conference possible. Finally, we extend our thanks to all the referees for their constructive comments on all papers, and we express our deepest gratitude to the organizing committee for their tireless work in making this conference a reality.

Beyond Intelligence
AI for a Changing Planet

ABOUT BEYOND INTELLIGENCE 2024

Get ready to dive into the world of innovation at Beyond Intelligence 2024! Hosted by The IFERP Academy , this exciting international conference is happening on October 26th & 27th, 2024 in Beijing, China. Join scholars, educators, and researchers as we explore the power of AI and its integration into various fields. From dynamic discussions to insightful presentations, this event is all about using artificial intelligence to solve real-world problems. Get ready to be inspired and make a difference with us at Beyond Intelligence 2024!

Scope of the Conference

Discover the amazing world of AI at Beyond Intelligence 2024! Our theme, "AI's Role in Solving Global Challenges," explores how AI can help solve big problems in areas like science, engineering, and healthcare. Come join us as we learn how AI is changing the world and making it a better place for everyone.

Objective of the Conference

The aim of Beyond Intelligence 2024 is to propel innovation across various fields through the transformative power of artificial intelligence (AI). Here are some of our key objectives:

Skill Enhancement: Whether you're an educator, student, or researcher, the goal of the conference is to enhance your skills with AI to contribute to the advancement in diverse domains.

Useful Discussion: Provide a platform for experts to engage in insightful discussions about the latest challenges, emerging trends, and practical applications of AI.

Meaningful and Deep Conversations: Explore trending issues, groundbreaking ideas, and innovative approaches that will shape the future of AI in various industries.

AI Revolution: Delve into the ways in which AI is revolutionizing different sectors and explore its potential to enhance processes and outcomes.

Highlight Innovations: Recognize innovators in the field who are pushing the boundaries of AI with their research and innovative approaches while keeping ethics in mind.

Safeguarding the future: AI plays a pivotal role in shaping our future, and it's essential to consider its ethical implications as it continues to advance.

Promote Research Exploration: Inspiring scholars and professionals to explore new research methodologies and push the boundaries of AI innovation in their respective fields.

Address Critical Challenges: To facilitate conversations about the evolving challenges in the world and brainstorm creative solutions using AI to overcome them.

Enhance Excellence in AI: Collaborate to share best practices, optimize existing systems, and ensure that AI can automate repetitive tasks and improve decision-making.

Facilitate Networking and Growth: Provide a platform for networking, knowledge sharing, and potential collaborations or partnerships to foster growth and development.

ABOUT IFERP ACADEMY

IFERP, or the Institute for Educational Research and Publication, is renowned for its focus on engineering, science, and technology. With a global vision, IFERP aims to unite the scientific community through digital innovation, prioritizing the advancement of industrial trends and the dissemination of the latest research. With a presence across Europe, the Middle East, Asia, and beyond (including countries like Iraq, Malaysia, and Australia), IFERP offers many things: publication, networking, and research support in various scientific fields.

IFERP is well known for hosting international conferences to bring together scientists, researchers, students, and professionals worldwide for collaboration. Additionally, they publish articles indexed by Web of Science and SCOPUS. They also organize important webinars and provide comprehensive research aid and guidance.

Key objectives of IFERP include promoting Industry-Institute Interaction and contributing to Youth Empowerment projects. Through initiatives focused on faculty growth, skill development, and ongoing research and publication projects; IFERP is dedicated to supporting professionals in their research journeys.

Mission & Vision

Mission: "Upskilling the knowledge hub through technological innovation and excellence for the benefit of humanity"

Vision: "A Digitally equipped robust, dynamic & swift professional community integrating academics & industry for upgraded technical knowledge implementation."

What IFERP Do?

The commitment of IFERP is the dedication to the professional journey by providing access to a high-quality platform. Here's what they focus on

Promoting Innovation: Inspiring creativity and keeping up with the newest developments in engineering, science, and technology.

Collaboration: Actively partnering with institutions, organizations, and associations to build a better future together.

Publication Opportunities: Offering opportunities for research papers to be published in respectable journals, hence enhancing recognition and knowledge dissemination.

Academic Resources: Providing access to educational resources and support for researchers in both rural and urban locations.

Diverse Learning Opportunities: Conferences, webinars, seminars, guest lectures, training courses, and faculty development programs are among the many learning opportunities offered by IFERP.

MESSAGE, IFERP DIRECTOR

On behalf of IFERP & the organizing Committee, I express my hearty gratitude to the Participants, Keynote Speakers, Delegates, Reviewers and Researchers. The goal of the "Beyond Intelligence: AI for a Changing Planet" is to provide knowledge enrichment and innovative technical exchange between international researchers or scholars and practitioners from the academia and industries in the field of "Beyond Intelligence: AI for a Changing Planet".

This conference creates solutions in different ways and to share innovative ideas in the field of AI. "Beyond Intelligence: AI for a Changing Planet" provides a world class stage to the Researchers, Professionals, Scientists, Academicians and Students to engage in very challenging conversations, assess the current body of research and determine knowledge and capability gaps.

"Beyond Intelligence: AI for a Changing Planet" will explore the new horizons of innovations from distinguished Researchers, Scientists and Eminent Authors in academia and industry working for the advancements in Science and Engineering from all over the world.

"Beyond Intelligence: AI for a Changing Planet" hopes to set the perfect platform for participants to establish careers as successful and globally renowned specialists in the field of AI.

Mr. A. Siddth Kumar Chhajer
Founder & Managing Director,
IFERP, Technoarete Group, India

MESSAGE, IFERP CEO

IFERP is hosting the "Beyond Intelligence: AI for a Changing Planet" this year in month of October, 2024. The main objective of Beyond Intelligence: AI for a Changing Planet is to grant the amazing opportunity to learn about groundbreaking developments in modern industry, talk through difficult workplace scenarios with peers who experience the same pain points and experience enormous growth and development as a professional. There will be no shortage of continuous networking opportunities and informational sessions.

The sessions serve as an excellent opportunity to soak up information from widely respected experts. Connecting with fellow professionals and sharing the success stories of your firm is an excellent way to build relations and become known as a thought leader. I express my hearty gratitude to all my Colleagues, Staffs, Professors, Reviewers and Members of Organizing Committee for their hearty and dedicated support to make this conference successful. I am also thankful to all our delegates for their pain staking effort to make this conference successful.

Mr. Rudra Bhanu Satpathy
Founder & CEO,
IFERP, Technoarete Group, India

ABOUT KEYNOTE SPEAKER

Dr. Iris-Panagiota Efthymiou has a PhD in Behavioral Health Economics from the University of Piraeus, Greece. She is a Lecturer at the University of Greenwich and the University East London, Board Member of HAPSc, As. Researcher at the Laboratory Of Health Economics and Management (LabHEM) at the University of Piraeus. She has more than 50 publications (research articles in scientific journals, chapters, and 12 books).

Dr. Iris Efthymiou

Board Member & President,
Interdisciplinary Committee,
Hellenic Association of Political Scientists,
United Kingdom

ABOUT KEYNOTE SPEAKER

Dr Sandhya Patidar is currently working as Professor (Associate) in Statistical Modelling at Heriot-Watt University, Edinburgh. She joined Heriot-Watt University in 2009 as a post-doctoral researcher in the School of Mathematical and Computational Sciences. Her work (highly-interdisciplinary application of statistical approaches) attracted lots of attention across the university and she has been offered an open-ended contract to work as a Lecturer of Statistical modelling in the School of Energy, Geoscience, Infrastructure and Society in 2013. With her growing success and commitment to the work, she has been promoted to Associate professor in 2019. She holds a Ph.D. in Applied Mathematics from Loughborough University (UK) and an MSc in Mathematics with specialisation in Statistics (Devi Ahilya Vishwavidhyalay, India) passed with distinction.

Dr. Sandhya Patidar
Associate Professor,
Heriot-Watt University,
United Kingdom

ABOUT KEYNOTE SPEAKER

Dr. Mitra Madanchian
Assistant Professor,
University Canada West,
Canada

Mitra Madanchian is an Assistant Professor at University Canada West and Adjunct Professor at Fairleigh Dickinson University. She is also the Director of Quark Minded Technology Inc. and Hamta Business Corporation. Holding a Ph.D. in Business Management from Universiti Teknologi MARA (Malaysia), a Master of Administrative Science in Human Resources from Fairleigh Dickinson University, and both Master's and Bachelor's degrees in Applied Linguistics from University Putra Malaysia, she has a strong academic background. With over a decade of industry experience, including roles in both SMEs and a Big Four firm (KPMG), Mitra has established herself as an expert in Business Management and Research and Development. Her professional career spans various international companies, covering fields such as IT, International Trade, Finance, and Education. In addition to her industrial expertise, Mitra is an accomplished academic researcher, specializing in Business Management, Leadership, Human Resource Management, Marketing Management, FinTech, and IT Management. Her work has been published by reputable publishers like Elsevier, IGI Global, and MDPI, comprising over fifty scientific articles in peer-reviewed international journals, seven book chapters, and a book on leadership. She is a member of CPHR and has served as a session chair and speaker at international conferences, presenting numerous papers. Currently, her research interests focus on the role of AI in HR and Marketing. Additionally, Mitra is authoring a book entitled "Ethics in Human Resource Management," which is currently in press.

ABOUT KEYNOTE SPEAKER

Dr. Abdel-Karim Al-Tamimi is a Senior Lecturer at Sheffield Hallam University, where he leads the Conversational AI Research Cluster (CAIRC) and affiliated with the Advanced Wellbeing Research Centre (AWRC) and its startup accelerator programme. He is spearheading several innovative projects supported by funding from EPSRC, Innovate UK, and DSIT, which are dedicated to enhancing individual wellbeing through AI technologies. Dr. Al-Tamimi's research leverages his deep knowledge in machine learning (ML), natural language processing (NLP), and enterprise software development to create AI solutions aimed at improving accessibility, independence, and wellbeing for vulnerable communities. Additionally, he actively participates as a panelist and advocates for the development and use of explainable and ethical AI.

Dr. Abdel-Karim Al-Tamimi
Senior Lecturer
Sheffield Hallam University
United Kingdom

ABOUT SESSION SPEAKER

Mr. Lalit Gautam is a dynamic entrepreneur who founded his first startup at 23 and, by 29, has founded four startups, with three successfully funded and exited. He has addressed global issues like climate change and textile waste since his college days. Lalit believes exponential technology can solve social issues in India and developing nations. He has mentored over 50 social impact startups, aiding them in fundraising. As a public speaker, he has spoken on diverse topics at platforms including the UN HQ in Geneva. Lalit is the only entrepreneur awarded by three European governments with an innovative startup visa. He has received multiple fellowships and is active in international youth organizations. Lalit was the Indo American Youth Leader and ASEAN Youth Leader for 2019. He is writing two books on startups and is a Robert Swan Arctic expedition fellow.

Mr. Lalit Gautam
Chief Executive Officer
Sensegrass
France

ABOUT SESSION SPEAKER

Mr. Yonah Welker is a technologist and public expert focused on the algorithmic spectrum, including AI, robotics, and emerging technologies addressing social and human-centered issues. Yonah collaborates on creating, evaluating, and implementing technologies and policies, contributing to AI and digital acts. With over a hundred appearances, Yonah raises awareness of social technologies and policies. Previously, Yonah co-founded Hardwaretech think tank, evaluated tech ventures, and worked with technology transfer and innovation ecosystems. Yonah has been featured by the White House, World Economic Forum, Forbes, OECD, and Unesco. Recent themes include ability and spectrum-centered algorithms. Recent appearances include AI Act Summit, World AI Cannes Festival, and Responsible AI Forum.

Mr. Yonah Welker

Public Technologist

Former. Ministry Advisor, Tech Envoy EU_ Commission projects

Switzerland.

ABOUT SESSION SPEAKER

Mr. Girish Mavath Ramachandran is a versatile strategist and out-of-the-box thinker with a passion for business transformation and sustainable development. My expertise spans financials, technology, and socio-economics, focusing on leveraging innovation to drive impactful change. With a background in program management and investment, I specialize in supporting masterplans and deal transactions that foster nation-building initiatives and enhance quality of life. My interests also extend to agriculture and food security, aligning efforts with Environmental, Social, and Governance (ESG) principles and Sustainable Development Goals (SDGs). In the realm of Industry 4.0, I integrate AI, blockchain, and data analytics to spearhead digital transformations, particularly in creating smart, sustainable cities and advancing the concept of digital plantations. I am equally adept at bridging sectors, collaborating with entrepreneurs, NGOs, and public sectors to shape policies that enable inclusive growth and technological advancement.

Mr. Girish Mavath Ramachandran
Founder
27 Group
Malaysia

ABOUT SESSION SPEAKER

Evgeniy Gavrilov currently serves as the Head of Artificial Intelligence and Team Lead at UVENCO since March 2023. Concurrently, Evgeniy has held roles as an Associate Professor and Research Scientist at Moscow Polytechnic University since October 2011. Prior experience includes working as a Team Lead Computer Vision Engineer and Computer Vision Engineer at Zyfra Company from August 2021 to March 2023. Evgeniy holds a Doctor of Philosophy - PhD in automobiles and tractors from Bauman Moscow State Technical University (2013-2016), as well as professional retraining in State and Municipal Management from The Russian Presidential Academy of National Economy and Public Administration (RANEPA) (2019-2020). Additionally, Evgeniy earned a Master of Education - MEd in Lecture Researcher from Moscow University of Mechanical Engineering (2013-2016) and studied at MSTU MAMI from 2008 to 2013 in the Service of Transport Vehicles and Equipment.

Dr. Evgeniy Gavrilov
Head
Artificial Intelligence,Uvenco
Moscow,Russia

ABOUT SESSION SPEAKER

Shivanshu Thapliyal, Head of AI-Innovation at HL Mando, India. A leader with over 12 years of experience at HL Mando Corporation, where he has played a pivotal role in advancing AI and hardware integration. As the Head of the AI-Innovation Team within the Hardware Department, Shivanshu leads cutting-edge projects that blend artificial intelligence with practical, real-world applications.

Throughout his tenure, Shivanshu has driven numerous groundbreaking initiatives. These include the development of advanced AI models and architectures for semiconductor defect detection, the optimization of electric motor designs, and the application of machine learning in suspension and brake system development. His work also extends to smart factory projects, where he designs AI- driven systems to enhance manufacturing processes, reduce downtime, and boost overall productivity. Shivanshu's expertise goes beyond project management—he delivers end-to-end solutions that are technically robust, user-friendly, and have a lasting impact. His contributions are setting new standards for innovation and efficiency in the integration of AI with hardware systems.

Mr. Shivanshu Thapliyal
Head of AI-Innovation
HL Mando
India

ABOUT SESSION SPEAKER

Dr. Nam Le is the Assistant Professor and Vice Chair of the Undergraduate Department at University Canada West. He holds a Doctor of Business Administration from Walden University, a Master of Science in International Business from the University of Hertfordshire, an MBA from Vancouver Island University, and a professional designation in international trade. Dr. Le is a leading expert in globalization, emerging economies, global migration and immigration, and the internationalization of small and medium-sized enterprises (SMEs), with a particular focus on East Asia. His publication record and research contributions reflect his commitment to advancing knowledge in these critical areas of business management.

Dr. Nam P. Le, DBA, CITP® | FIBP®
Assistant Professor & Vice Chair
University Canada West
Canada

ABOUT SESSION SPEAKER

Ir. Dr. Zaki Zainudin is a Professional Engineer with the Board of Engineers Malaysia (BEM), Chartered Engineer (CEng) with the Engineering Council, UK and Chartered Environmentalist (CEnv) with the Society for the Environment (SocEnv, UK). Zaki is a renowned environmental specialist in the area of water quality assessment and modeling, having led and played key roles in numerous environmental studies for both private and government sectors. He is often a source of reference for various organizations on surface water quality management; such as being an expert panelist for the Department of Environment Malaysia (DOE, EIA, Water and Marine units) and is advisor to many prominent environmental consultancy firms. He has conducted various workshops and talks on water quality and modeling at both local and international venues. Zaki is also on the management committee of the International Water Association (IWA), Watershed and River Basin Management (W&RBM) Specialist Group.

Dr. Zaki Zainudin
Water Quality and Modeling Specialist
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ABSTRACTS INDEX

A Comprehensive Review of Parkinson's Disease Symptoms and Detection Method

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Abstract— This paper discusses the importance of examining Gait, EEG, and Speech data to diagnose neurological conditions associated with Parkinson disease (PD). The numerous methods for analyzing Parkinson's disease by separating the electrical activity of brain signals are discussed in research articles. Although EEG systems have relatively limited spatial resolution and will be contaminated with numerous aberrations, they are frequently used to extract brain signals since they are quite capable of monitoring electrical activities of the brain. Speech signal analysis is frequently used to detect Parkinson's disease because current surveys show that roughly 70% to 90% of patients with the condition exhibit dysphonic (impaired speaking ability) symptoms. The speech quality may vary as a function of the surrounding environment and motion disturbances, which could lead to an incorrect diagnosis. Despite the above-mentioned limits of gaits, EEG and Speech Signals might result in a flawed diagnosis of the diseases and may result in subtle manifestations of faults, despite the fact that researchers have suggested a variety of risk factors for appropriate analysis of PD using these signals. Therefore, to more accurately detect these neurological illnesses using EEG and voice signal analysis, a powerful diagnostic system is required. This paper discusses the various approaches and methodologies used in diagnosing neurological conditions like PD using speech and EEG signals, which gives researchers a better understanding of how to carry out future research and create an effective integrated algorithm for diagnosing the aforementioned neurological conditions using Gaits, speech and EEG signals.

Keywords— Parkinson's Disease, Gaits, EEG, Speech Signal

Investigating Basic Writing Course: The Practices and Perceptions of Students at University Level

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Abstract— Basic writing as the first stepping stone course in learning English writing skills need to be taught properly. The current method used in university level in teaching basic writing is using Picture Word Inductive Model (PWIM). Nevertheless, this method is not implemented comprehensively. Therefore, this research is trying to collect primary data from students regarding their practices and perceptions for basic writing course with the current methods. The purpose of this study is to find out how the basic writing learning process by using PWIM and to analyze how students perceive in basic writing learning course and to describe the effectiveness of basic writing learning using PWIM. Respondents were 50 students of the English education study program at university level who took basic writing courses in the third semester. They are selected from four basic writing classes by using purposive sampling technique. This study used mixed methods where qualitative descriptive methods are used to find out and analyze the learning process and perception of students in basic writing classes based on the results of semi-structural interviews conducted and also based on the results of questionnaires distributed to the 50 students. While the experimental method with pretest-posttest design is carried out to find out the effectiveness of basic writing learning using PWIM. Before the data is processed, researchers conduct assumption tests such as tests of normality. After that, a paired t-test is performed. The result showed that the learning process with this approach still needs to be improved, especially about consistency in using this PWIM approach. Then related to the perception of students toward basic writing course also needs to be considered as feedback on better basic writing learning. Furthermore, the results of statistical calculations illustrate that this approach has an influence in the implementation of the effective basic writing classes.

Keywords— Basic Writing, Practices, Perceptions, University Level

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The Development of Augmented Reality-Based Marker-Based Encyclopedia with Sets Approach (Science, Environment, Technology and Society) to Improve Digital Skills of Educational Technology Students

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Abstract— Metaverse, one of the Augmented Reality technologies that is currently trending following the digital and technological advances is proven to have the ability to improve the quality of learning. The objectives of this research are: 1) to develop an Augmented Reality-based marker-based encyclopedia using the (SETS Science, Environment, Technology and Society) approach; 2) to find out the quality of the media; and 3) to Apply the media in the classroom in the context of improving the digital skills of Educational Technology students. The research design refers to the Research and Development (R & D) method which is oriented to the Hannafin and Peck model with some stages: 1) Conducting need analysis, 2) Designing, 3) Developing, and 4) Conducting evaluation and revision. The sample of this research is Semester I students of the Educational Technology Study Program at Ibnu Khaldun University, Bogor city who are taking the Learning Media course. The data collection methods used are Interviews, surveys, respondent questionnaires, tests, and observation sheets to get the information. Based on the results of the research conducted, it is found that the application of the SETS approach with the Augmented Reality-based marker-based Encyclopedia can improve the digital skills of Educational Technology students.

Keywords— Marker-Based Encyclopedia, Augmented Reality, SETS, Digital Skills

ISETL Program and APOS Theory as An Effort to Help Students Understand Algebraic Structure Course and Train Student's Learning Autonomy

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Postgraduate Program, Educational Technology Study Program, Universitas Negeri Jakarta, Indonesia
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Postgraduate Program, Educational Technology Study Program, Universitas Negeri Jakarta, Indonesia

Abstract— The purpose of this study was to comprehensively describe the activities, responses and learning autonomy of the students after conducting the ISETL program on APOS Theory. The type of this research was descriptive research. The sample in this study were students of Mathematics Study Program, Faculty of Mathematic and Science, Pamulang University who took Algebraic Structure course. The research instruments used were observation sheets and questionnaires. The observation sheet was to observe the students' activities during learning using the ISETL program, while the questionnaire was to find out the students' responses toward the learning of using the ISETL program and to see students' learning autonomy. From the results of descriptive analysis showed that the learning of algebraic structure courses, especially Group material using the ISETL program could lead to a positive attitude of students towards algebraic structure courses and students give a positive responses to the course. Furthermore, the results of the analysis of the learning autonomy questionnaire showed that learning by using the APOS model could affect the students' learning autonomy, this can be seen from the results of the gain test showing that all students experience an increase in their learning autonomy. Self-initiative and self-evaluation or reflection showed an increase with moderate criteria, while aspects of goal setting and learning strategies showed an increase with high criteria.

Keywords— ISETL Program, OPOS Theory, Algebraic Structure Course, Learning Autonomy

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Research on Network Malicious Traffic Detection System Based on Maltrail

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Yango University, Fuzhou, China
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Abstract— Nowadays the cybersecurity is a very critical topic due to all kinds of cyber-attacks, and the detection and mitigation of malicious network traffic are becoming more important. This paper presents a comprehensive study of the malicious traffic monitoring system based on an Maltrail, an open-source network security tool, leverages a combination of traffic analysis and threat intelligence to identify and report suspicious network behavior, which focusing on its operational mechanisms, feasibility, and effectiveness in detecting malicious activities. In this paper, we deployed Maltrail in a controlled experimental environment to rigorously evaluate its performance, improve and integrated the Maltrail Main() function to improve its performance. The methodology includes enhance the network traffic detection architecture and mechanism, as well as use it to detect the 0-day attacks to test the system's detection capabilities. The integration of Maltrail with the existing network infrastructure and its data capture effect are evaluated, and the parameters such as attack script detection rate are compared with the traditional three-layer network basic security protection architecture. The results of the study show that Maltrail is able to effectively identify various malicious traffic patterns with high detection rates and low false positive rates. The system enhances its ability to detect emerging threats in a timely manner by crawling network data from different dimensions and relying on open-source threat intelligence databases. In addition, Maltrail's simple deployment process and compatibility with various network environments make it a versatile tool for network administrators. This study highlights the importance of implementing a powerful network traffic monitoring system such as Maltrail to enhance organizational network security. The insights gained from our experimental deployment provide valuable guidance for network security professionals seeking to strengthen their defenses against evolving network threats.

Keywords— Cyber Security; Maltrail; Malicious Traffic; Network Detection;0-Day Attacks

Veterinary RAG Model: A Novel Approach to Clinical Decision Support

Amish Jain
Northwestern University, California, USA

Abstract— The Veterinary RAG Model highlights the potential application of Retrieval-Augmented Generation (RAG) models in veterinary medicine, offering a novel approach to clinical decision-making. By combining information retrieval with natural language generation, this model demonstrates how RAG technology can be leveraged to provide real-time, contextually relevant guidance using a comprehensive corpus of veterinary literature. The aim of this study is to evaluate the potential of RAG models in veterinary clinical scenarios, emphasizing accuracy, relevance, and usability1. Initial testing indicates the significant promise of this approach for improving decision-making in veterinary practice. Future work will explore integration with electronic health records and further refinement of the knowledge base.

Keywords— Veterinary RAG Model, Clinical Decision Support, Retrieval-Augmented Generation (RAG)

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Artificial Intelligence (AI): JBLFMU Teachers' Awareness of Access to and the Use of AI Tools for Instructions

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Abstract— Artificial Intelligence (AI)-driven tools are one among the many evolving educational innovations that are present today. Despite the growing potential of AI in education, many educators are still oblivious to the use and access of this technology. A study was conducted to assess the knowledge and perceptions of teachers from the three units of John B. Lacson Foundation Maritime University (JBLFMU) regarding AI in education and their access to AI-powered tools for instruction. The study consists of an analysis of thematic contents deploying a semi-structured questionnaire with a total of forty-one respondents. The study found that teachers have a general understanding of AI, but they have limited access to AI tools and are not well-versed in the specific ways that AI can be used in instruction. Some teachers also expressed concerns about the potential negative impacts of AI, such as limiting students' creativity and critical thinking. Some also identified potential benefits such as its ability to improve the quality of teaching by processing and analyzing vast amounts of data quickly, making it easier to access information needed for the delivery of instruction. Based on the findings, it is recommended that teachers undergo more training on AI tools for instruction, focusing on the benefits and challenges of AI and its specific uses in improving teaching and learning. Additionally, the administration should invest in AI-powered tools that can be used by teachers and students.

Keywords— Artificial Intelligence, Education, Emerging Technology, Instructions

Improving Intelligence of Machine Learning Models for Achieving Higher Success Rate in In Vitro Fertilization (IVF)

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Abstract— The prediction of IVF success rates is essential for optimizing treatment and improving patient outcomes. Traditional methods, which often rely on static clinical factors, generally achieve accuracy rates around 60-70% but struggle to capture the complex interplay of variables influencing IVF success. Machine learning (ML) models offer significant potential, with some studies reporting accuracy improvements of up to 80% by analyzing large, multifaceted datasets and identifying patterns that traditional methods miss. This review explores the current state of ML in IVF, highlighting both advancements and challenges. While certain models, particularly those employing deep learning, have shown accuracy rates exceeding 85%, issues such as data quality, model interpretability, and integration into clinical practice remain significant barriers. Furthermore, the reliance on small, homogeneous datasets limits the generalizability of these models, reducing their effectiveness across diverse populations. Future research should focus on developing more interpretable and personalized models, improving accuracy by incorporating diverse data sources, and addressing ethical concerns, particularly around bias and transparency. Achieving this will require interdisciplinary collaboration to ensure that ML models can be effectively integrated into clinical practice, ultimately enhancing IVF success rates and advancing the field of reproductive medicine.

Keywords— Machine Learning, IVF, Deep Learning, Predictive Analytics, Interdisciplinary Collaboration, Reproductive Medicine, Bias And Transparency

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Endangered Eye: An IOT Based AI Drone System to Safeguard Endangered Animals

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Abstract— The Endangered Eye is an AI-powered drone deployed on agricultural farms to enhance security and detect potential threats to ecological stability and sustainable farming. The extinction of animal species poses serious challenges to maintaining this balance, which in turn affects farms. Farmers are often faced with tough choices, such as using electric fences to safeguard their crops, but these solutions can unintentionally harm animals that are vital to the ecosystem. To tackle these pressing concerns, our research introduces a cutting-edge solution—an advanced object-detection system. We developed and implemented this system using the ESP32-CAM platform combined with the YOLOv8 object detection model. The system is designed to detect both endangered species and harmful animals in farming areas. Additionally, it offers real-time notifications to farmers and wildlife by incorporating a cloud-based alert system, ensuring timely interventions for both farm and wildlife protection.

Keywords— AI-Powered Drones, Agricultural Security, Ecological Stability, Sustainable Farming, Endangered Species Detection, ESP32-CAM Platform

Gaseek Rover: An Autonomous System for Advanced Environmental Hazard Detection

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Abstract— The Gaseek Rover is an advanced solution for environmental safety and hazard identification, employing gas sensors to continually monitor air quality over various terrains. It detects dangerous gases such as methane, carbon monoxide, and smoke and provides real-time information and alerts. The rover easily traverses hard situations because to its sturdy chassis and excellent autonomous navigation, as well as remote control operation choices. Its connectivity modules, including Wi-Fi, Bluetooth, and LoRa, provide seamless data transmission to remote servers, allowing for quick responses. The rover's multifaceted applications include industrial safety, environmental monitoring, and catastrophe response, making it critical for proactive hazard management and complete environmental surveillance.

Keywords— Environmental Safety, Hazard Detection, Gas Sensors, Air Quality, Methane, Carbon Monoxide, Smoke, Real-Time Data, Autonomous Navigation, Remote Control, Wi-Fi, Bluetooth, LoRa, Industrial Safety, Disaster Response, Environmental Monitoring

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Uncovering Clique Attacks in Search Engines through the K-Clique Percolation Approach

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Abstract— Search engines make the information retrieval task easier for the users. Highly ranking position in the search engine query results brings great benefits for websites. Some website owners interpret the link architecture to improve ranks. To handle the search engine spam problems, especially link farm spam, clique identification in the network structure would help a lot. This paper proposes a novel strategy to detect the spam based on K-Clique Percolation method. Data collected from website and classified with NaiveBayes Classification algorithm. The suspicious spam sites are analyzed for clique-attacks. Observations and findings were given regarding the spam. Performance of the system seems to be good in terms of accuracy. Analyzing the link properties of website such as indegree (number of inliks), outdegree (number of outlinks), in_out average (for home page and other pages), Pagerank reveals the presence of the spam. The inlinks and outlinks has the intersections (same node acting as inlink and outlink) which is an important aspect to determine the link farm. The Pagerank is considered because it is computed based on the link properties of the website. Totally twelve features are considered and finally the presence of cliques is determined based on the link spamcity score.

Keywords— Clique, Link Spam, Search Engine, Ranking, Search Engine Optimization

Diagnosis Analysis for Cancer Prediction using Feature Engineering in Deep Learning

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Abstract— Breast malignant growth is the most regular disease among women now a day. Among 2.1 million ladies affecting every year and also furthermore causes the maximum number of cancer death related cases among ladies. Early analysis procedures focus on providing opportune access to malignancy treatment and also decreasing hindrances to care effective diagnosis services. The Research focused on planned to contribute the early analysis of breast malignant growth. A study of the breast malignant growth analyze for the patients is specified. The goal of the paper is to locate subset of features to ensure the patients have malignant and other patients are in difficulty with breast malignant is to be predicted to cover of those data. The study of various malignant classification approaches using Decision Tree (DT), deep learning method to find the different time complexity and accuracy and the Sensitivity, AUC Value.

Keywords— Breast cancer, Data mining, Prediction, Feature Selection, Deep Learning, Decision Tree

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Methodology for Data Analysis of Student Dropout in Post-Pandemic

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Abstract— The main objective of this research work was to develop a methodology to analyze student dropout in post-pandemic times with the use of open data from public repositories in Spain, data analysis as well as national and international reports and others from the Universidad Politécnica de Madrid. According to the state of the art, there is a post-pandemic effect manifested mainly with the increasing intention to work with a specific learning modality different from the usual one with a new attitude, and a greater feeling of loneliness on the part of the students of some groups. A survey was applied using Google Forms to a group of students from the Universidad Politécnica de Madrid, emphasizing dropout intention in post-pandemics as the output variable. A decision tree and random forest models were proposed and evaluated. It can be concluded that dropout is a multifactorial problem that will depend on the modality, individual characteristics, first-year grades, gender, socioeconomic level and region of origin, among other factors, and it can materialize as exit from the university educational system, change of grade or of modality preference. A factor that can also possibly influence dropout is the university admission process.

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Design of a Predictive Model of People's Mental Health State based on Music Consumption Patterns

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Abstract— This research project attempts to design a predictive model to analyze the mental health status reported by individuals and based on their music consumption patterns. In this work, two predictive machine learning submodels were designed based on the Random Forest algorithm, taking as input variables the attributes of the two datasets (control and disorder) obtained from public repositories that contained tweets from a large group of anonymous users, such as song, author, listening time, mental health status and platform. The first predictive model was designed to classify the observations of the control dataset, determining whether they belonged to the control or non-control class. The second predictive model was designed as a multiclass classifier to predict the mental health status in the disorder dataset. In both cases, cross-validation, K-fold stratification, data balancing and SMOTE (Synthetic Minority Oversampling Technique) techniques were used.
The results show that it may be possible to predict with adequate accuracy the mental health states reported by the group of users, and using other machine learning techniques, from the tweets collected during a period of time in which music consumption patterns are expressed.

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AI and Blockchain for Sustainable Energy and Carbon Markets

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Abstract— This study delves into the application of blockchain technology in carbon trading, exploring its capabilities and limitations. Through the implementation of a blockchain-based carbon trading platform, we conducted extensive numerical experimental analysis to evaluate its performance. The results demonstrate the significant benefits of blockchain technology in this domain, as well as the potential for power and battery stor- age analysis to optimize the utilization of renewable energy. The numerical experimental analysis involved the following steps: 1) Platform Implementation: we've developed a decentralized blockchain-based carbon trading platform using Ethereum. 2) Transaction Generation: we've simulated a realistic carbon trad- ing scenario with varying transaction volumes. 3) Performance Evaluation: We measured the platform's latency, throughput, and transaction costs.

Keywords— Carbon Trading, Blockchain, Power Analysis, Bat- Tery Storage Analysis, Ethereum, Smart Contracts, Transparency, Efficiency, Accountability

The Relationship Between Personal and Social Responsibility with Environmental Awareness

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Abstract— Climate change poses a significant threat to the environment and human well-being. To address this challenge, it is crucial to cultivate environmental awareness, personal responsibility, and social responsibility among individuals. This study employed a systemic, transdisciplinary, and data mining approach to investigate the relationships between these socio-emotional skills and conducted an educational intervention to promote their development.
The study involved administering a questionnaire to engineering students at the Instituto Politécnico Nacional in Mexico City.
Therefore, the hypothesis suggests that individuals with a heightened sense of both personal and social responsibility tend to have a greater level of environmental awareness and are more likely to adopt sustainable behaviors.
The data obtained was analyzed using data mining techniques, revealing direct and significant correlations between personal and social responsibility and environmental awareness. Additionally, association techniques were employed to identify patterns, sequential patterns, and other insights from the data, which can be used to develop predictive models of behavior.
This hypothesis provides a compelling rationale for incorporating the cultivation of these values into educational initiatives aimed at addressing climate change and contribute to more sustainable behaviors.

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HydroHackathon Sustainable Solutions from AI

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Abstract— During the Hackathon academic event, this time called Hidrohack for the search for innovative proposals to clean up the Santiago River, which is one of the main tributaries of Guadalajara, which in turn supplies part of the water to Mexico City. The Hidrohack had The objective is that students will develop sustainable innovative proposals in order to contribute to the SDGs as well as achieve viable and feasible proposals which will be implemented in Rio. The application of the STEAM-ABP Methodology and collaborative work during the event will be developed. STEAM skills which include technological and digital skills, as well as social-emotional skills and sustainable skills. Complying with the agenda and the times, the databases with more than 10 years of the 35 measurement points were analyzed, data mining was carried out, Data Science work was carried out and after knowing the panorama of the situation, as well as the behavior historical data of the River at its different measurement points; In collaborative teams, participants designed a sustainable solution based on AI. With AI, the proposal is to monitor measurement patterns, as well as detect dangerous parameters, generate action plans to contain and prevent these situations and with all Contribute to river sanitation for the benefits of the populations that use river water.

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Bridging the Gap: Strategies for Enhancing the Employability of Fresh Graduates in Mid-Level Positions

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Abstract— This paper addresses the problem that has always bothered industrial leaders in recruiting fresh graduates directly into mid-level positions. Employers are often skeptical about the dependability and efficiency of a fresh graduate at such levels, so they would like to fill the positions through fresh entry-level recruitment. The graduate fresh recruit on-the-job training is also not without its attendant risks because it will eventually lead them to look for greener pastures. This creates a frustrating situation and increases anxiety among fresh graduates and employers alike. In this paper, possible ways of reducing this problem have been discussed, and solutions recommended that can be used to encourage the development of a better environment for hiring fresh graduates for mid-level jobs.

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Addressing Hearing Impairments Through Machine Learning: A Review of Sound Detection and Assistive Technologies

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Abstract— This paper studies recent assistive technologies and AI sound detection systems that have been developed to support both the safety and communication of individuals who are deaf. With a highlight of the critical role of machine learning in all four stages, which are processing, feature extraction, real-time sound event detection, and deep learning applications, the paper is able to give an overall understanding of the sound wave detection system. Additionally, it addresses challenges such as real-time processing, polyphonic sound detection, and the integration of speech recognition technologies to improve communication and situational awareness. By synthesizing recent research and applications, this paper seeks to demonstrate the transformative impact of these technologies on the quality of life and safety for those with hearing impairments.

Keywords— Machine learning-based, Deaf and hard of hearing, Sound detection, Assistive Technologies, Speech Recognition, Realtime

Predicting Startup Success using Machine Learning: A Comprehensive Review of Current Research

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Abstract— In recent years, the application of machine learning (ML) models has gained significant traction in different fields, such as the prediction of startup success. Startups face many challenges, and the ability to predict their success or failure is of paramount importance for investors, entrepreneurs, and stakeholders. This paper provides a comprehensive literature review of existing research on the use of ML models in predicting the success of startups. By examining a wide array of studies, this review highlights the key factors influencing startup success, such as financial performance, team composition, market conditions, and business models. Various ML algorithms—such as logistic regression, decision trees, support vector machines (SVM), and deep learning techniques—have been employed across these studies. The review also explores the datasets, features, and evaluation metrics commonly used in predicting outcomes. This paper aims to synthesize the state of the art in this field and identify current trends, challenges, and future research opportunities.

Keywords— Startup, Predictive Analytics, Machine Learning, Decision Tree Model, Gaussian Naive Bayes Model, Logistic Regression Model, K-NN Model

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Classification of Endometrial Histopathological Images using Deep Learning

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Abstract— The primary motivation for this work is to look for more accurate and efficient methods in gynaecological cancer screening that could lead to better patient outcome based on early detection. This paper focuses on classifying endometrial histopathologic images into three categories—Non-Cancer, Cancer, and Hyperplasia. These images are Haematoxylin and Eosin stained, microscopic view images. We propose a deep learning model that uses a pre-trained VGG16 network for feature extraction and a Variational Autoencoder (VAE) to address this obstacle. With Synthetic Minority Over-sampling Technique (SMOTE) methods, the significant class imbalance in the data set (100 Non-Cancer, 12 Cancer, 18 Hyperplasia images) was addressed. Combining the features extracted from both VGG16 as well as VAE components, the model architecture is followed by dense layers for final classification. Five-fold cross-validation was used to ensure robust performance. The results of our approach demonstrate promising prospects in accurately distinguishing between the three classes, providing the possibility that it may serve as a useful tool for early detection and diagnosis of endometrial abnormalities.

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AI implementation with IBMS (Integrated Building Management) Systems

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Abstract— Artificial Intelligence (AI) offers numerous advantages across various fields and applications. Out of these the advantages of Automating the repetitive and mundane tasks, freeing up human workers to focus on more complex and creative activities. This leads to increased productivity and efficiency in various industries. AI algorithms can process and analyze vast amounts of data quickly and accurately, uncovering patterns and insights that might be missed by humans. This capability is invaluable in fields like finance, healthcare, and marketing. AI can tailor experiences and recommendations to individual preferences and behaviors. This is widely used in e-commerce, entertainment, and online services to enhance user satisfaction and engagement. In industrial and building management systems, AI can predict equipment failures and schedule maintenance proactively, reducing downtime and maintenance costs. AI systems can support decision-making by providing data-driven insights and recommendations. This is particularly useful in areas like business strategy, medical diagnosis, and risk management. AI-powered chatbots and virtual assistants can handle customer inquiries efficiently, providing quick and accurate responses. This improves customer satisfaction and reduces the workload on human support teams. AI can optimize energy use in buildings and industrial processes, reducing consumption and costs. Smart grids and energy management systems leverage AI to balance supply and demand, enhancing sustainability. Utilization of AI and adopting the SA can greatly help to make Edge computing more powerful which in turn reduces the load on the cloud infra (Network, data center, and applications) AI's ability to learn, adapt, and improve over time makes it a powerful tool for driving innovation and solving complex problems across various domains. As AI technologies continue to evolve, their potential to transform industries and improve our daily lives will only grow. The papers analyzed collectively explore the integration of AI, IoT, and context awareness to enhance real-time situation awareness, energy efficiency, and operational efficiency across various domains. From deploying deep learning at the edge for industrial processes to leveraging context awareness in the IoT cloud-edge continuum, the research highlights significant advancements in optimizing data processing and decision-making. The studies delve into AI's role in improving situation awareness in multimodal systems and human-AI interactions, emphasizing the importance of trust and transparency. In the realm of energy management, the papers review intelligent systems, predictive maintenance, and adaptive control, showcasing AI's potential to reduce energy consumption and improve indoor environmental quality. Case studies on BrainBox AI and other implementations demonstrate practical applications of AI in building management, highlighting real-time monitoring, predictive maintenance, and context-aware decision-making. The research underscores the transformative impact of AI and IoT in creating sustainable, efficient, and smart building management systems, paving the way for a future where intelligent technologies enhance our daily lives.

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Ergonomic Assessment and Musculoskeletal Disorders in Nurses at a Social Security Hospital

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Abstract— The high incidence of musculoskeletal disorders (MSDs) among nursing staff highlights the need for ergonomic research to identify and mitigate occupational risk factors. A cross-sectional study was conducted with 22 nurses from a social security hospital to assess the ergonomic risk of their work activities using the REBA and RULA methods. The objective was to determine the prevalence of musculoskeletal disorders (MSDs) in the upper limbs and their associated risk factors. Despite a normal body composition in most participants, a high prevalence of musculoskeletal pain and a lack of adequate ergonomic practices were evident. The results revealed a prevalence of MSDs in the upper limbs of 45.9%, identifying long working hours and static postures as significant risk factors. It is concluded that it is essential to implement ergonomic interventions, such as promoting correct postures and reducing workload, to improve occupational quality of life, reduce occupational risks, and decrease the prevalence and impact of MSDs in this population.

Keywords— Ergonomic Assessment, Musculoskeletal Disorders, Nurse, Ergonomic Risk

The Application of Mask Region-Based Convolutional Neural Networks in the Detection of Nasal Septal Deviation Using Cone Beam Computed Tomography Images: Proof-of-Concept Study

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Abstract— Background: Artificial intelligence (AI) models are being increasingly studied for the detection of variations and pathologies in different imaging modalities. Nasal septal deviation (NSD) is an important anatomical structure with clinical implications. However, AI-based radiographic detection of NSD has not yet been studied.
Objective: This research aimed to develop and evaluate a real-time model that can detect probable NSD using cone beam computed tomography (CBCT) images.
Methods: Coronal section images were obtained from 204 full-volume CBCT scans. The scans were classified as normal and deviated by 2 maxillofacial radiologists. The images were then used to train and test the AI model. Mask region-based convolutional neural networks (Mask R-CNNs) comprising 3 different backbones—ResNet50, ResNet101, and MobileNet—were used to detect deviated nasal septum in 204 CBCT images. To further improve the detection, an image preprocessing technique (contrast enhancement [CEH]) was added.
Results: The best-performing model—CEH-ResNet101—achieved a mean average precision of 0.911, with an area under the curve of 0.921.
Conclusions: The performance of the model shows that the model is capable of detecting nasal septal deviation. Future research in this field should focus on additional preprocessing of images and detection of NSD based on multiple planes using 3D images.

Keywords— Convolutional Neural Networks; Nasal Septal Deviation; Cone Beam Computed Tomography; Tomographic; Tomography; Nasal; Nose; Face; Facial; Image; Images; Imagery; Artificial Intelligence; Cnn; Neural Network; Neural Networks; Resnet

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Leveraging ML to Distinguish Eustress: A Novel Approach to Positive Stress Analysis

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Abstract— Positive stress, plays a vital role in performance enhancement, motivation and overall well-being. Eustress is a positive stress which motivates an individual positively in a stressed condition. The ability to identify accurately and distinguish eustress from the distress (negative stress) remains a challenge due to overlapping physiological and psychological responses associated with different types of stress. Artificial Intelligence along with machine learning has proved promising results in all the fields for the better future. This paper helps understand the novel approach to eustress analysis and detection using machine learning techniques. The physiological data such as heart rate variability (HRV), electrodermal activity (EDA), and EEG signals, along with behavioral and self-reported data are analyzed making it capable of differentiating eustress from other stress responses. Supervised learning algorithms like Support Vector Machines (SVM) and Random Forests, are employed to classify stress states, while unsupervised techniques are used to uncover latent patterns in stress responses. Identifying and understanding eustress is crucial in many fields – education, healthcare and even workplace management, where stress management can significantly impact well-being and productivity. The study discusses potential of machine learning to provide more accurate and nuanced insights into eustress – positive stress, giving valuable applications in workplace management, healthcare and education fields. Leveraging machine learning for eustress analysis and detection can contribute to stress management, promoting environments that fosters beneficial stress and enhances well-being of an individual.

Keywords— Eustress, Positive Stress, Progress, Artificial Intelligence, Machine Learning

The Influence of E-Banking Service Quality Dimensions and E-Trust on E-Satisfaction and Its Impact on E-Customer Loyalty through E-Customer Satisfaction as an Intervening Variable in the Bank Jago Application in Indonesia

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Abstract— The digital banking sector in Indonesia has seen growth in recent years, yet there is a contradiction: despite many complaints about e-service quality, it does not affect electronic trust or satisfaction. This study analyzes the impact of E-service Quality dimensions and E-Trust on E-Customer Loyalty, either directly or through E-Customer Satisfaction, focusing on the Bank Jago application. A total of 230 respondents who use the Bank Jago app in Greater Jakarta (Jabodetabek) were selected through purposive sampling. Respondents rated their perceptions on a five-point scale across 44 items. Data were analyzed using PLS-SEM with SmartPLS 4. The results show that Site Organization, Reliability, Efficiency, and User Friendliness do not significantly impact E-Customer Satisfaction, while Personal Needs, Responsiveness, and E-Trust do. Both E-Trust and E-Customer Satisfaction positively influence E-Customer Loyalty. This study suggests strategies to enhance loyalty in the growing digital banking industry.

Keywords— Bank Application, E-Service Quality, E-Trust, E-Customer Satisfaction, E-Customer Loyalty

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