

# AI Spectrum

## Bulletin

INSTITUTE FOR ARTIFICIAL INTELLIGENCE AND BIG DATA  
Center of Excellence (CoE)

EXPLORING ARTIFICIAL INTELLIGENCE (AI)'S IMPACT ACROSS DIVERSE DISCIPLINES



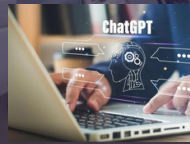
**AIBIG AWARDED BY YAYASAN  
PENYELIDIKAN ANTARTIKA  
SULTAN MIZAN (YPASM)  
RESEARCH GRANT (PG 16)**



**TNCPI ONE IN A MILLION  
AWARD 2023 (PG 30)**



**GENERATIVE AI (GenAI) AND  
LARGE LANGUAGE MODEL  
(LLM) (PAGE 38)**



At AIBIG, our commitment lies in pioneering multidisciplinary research that harnesses the power of Artificial Intelligence (AI) to tackle a broad spectrum of applications. We blend diverse fields to create innovative solutions, recognizing the transformative potential AI offers across varied domains. Our approach thrives on the integration of knowledge, fostering a collaborative environment where AI serves as a catalyst in addressing complex challenges and unlocking new possibilities.



**Prof. Ts. Dr. Arham Abdullah**  
Deputy-Vice Chancellor  
Research & Innovation

### FOREWORD BY DEPUTY-VICE CHANCELLOR

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"AI Spectrum is a platform to explore, discuss, and disseminate valuable insights into the dynamic world of artificial intelligence. In today's rapidly evolving landscape, AI plays a pivotal role, both globally and here in Malaysia. The first issue of AI Spectrum showcases our commitment to staying at the forefront of innovation and knowledge dissemination, mainly to spread and cultivate AI awareness, knowledge, and skill in the East Coast of Malaysia. At UMK, we take pride in our strong focus on entrepreneurship and our continuous efforts to foster a culture of innovation."

### THE CORE OF ARTIFICIAL INTELLIGENCE RESEARCH AT AIBIG

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"AIBIG, led by its director, has been involved in diverse projects using generative AI in several domains. These efforts encompass computational biomarker discovery, synthetic cell creation, and financial market applications. Notably, they've secured significant research grants: RM120,000 from the Sultan Mizan Antarctic Research Foundation (YPASM) for Polar region AI research, RM90,000 from the Malaysia-France Joint Research Collaboration (MyTiger), and RM70,000 from the Ministry of Higher Education Fundamental Grant Scheme."



**Muhammad Akmal Remli**  
AIBIG Director

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I am delighted to introduce the inaugural issue of AI Spectrum, the newsletter of the Institute for Artificial Intelligence and Big Data (AIBIG) at Universiti Malaysia Kelantan (UMK). As the Deputy Vice Chancellor for Research and Innovation (DVCRI) at UMK, I extend my warmest congratulations to the AIBIG team for their dedication and effort in bringing this exciting publication to life.

AI Spectrum is a platform to explore, discuss, and disseminate valuable insights into the dynamic world of artificial intelligence. In today's rapidly evolving landscape, AI plays a pivotal role, both globally and here in Malaysia. The first issue of AI Spectrum showcases our commitment to staying at the forefront of innovation and knowledge dissemination, mainly to spread and cultivate AI awareness, knowledge, and skill in the East Coast of Malaysia.



At UMK, we take pride in our strong focus on entrepreneurship and our continuous efforts to foster a culture of innovation. Establishing the Centre of Excellence, AIBIG is a significant stride in the right direction. It reflects our dedication to driving advancements in multidisciplinary research and fostering collaboration among various fields.

Moreover, AIBIG's endeavours are aligned with Malaysia's forward-thinking AI policies, including the "Malaysia Artificial Intelligence Road Map 2021-2025 (AI-RMAP)" and the National Fourth Industrial Revolution (4IR) Policy. These policies lay the groundwork for Malaysia's future in AI and innovation, and we are excited to be part of this transformative journey.

In the pages of AI Spectrum, you will find articles, features, and insights that shed light on the ever-expanding landscape of artificial intelligence and big data. We hope this newsletter will inspire and inform our readers, encouraging them to explore the boundless possibilities that AI offers.

I look forward to witnessing the growth and impact of AIBIG and the continued success of AI Spectrum. I encourage all stakeholders in the field of AI, as well as the wider academic and industrial community, to engage with the newsletter, contribute to its content, and join us in shaping the future of artificial intelligence and big data research.

Thank you for your support, and I wish you an enlightening and enjoyable reading experience.

## FOREWORD BY DEPUTY VICE-CHANCELLOR

**Prof. Ts. Dr. Arham bin Abdullah**

Deputy Vice-Chancellor Research & Innovation  
Universiti Malaysia Kelantan (UMK)

It is my pleasure to welcome you to the 1st issue of the AI Spectrum newsletter from the Institute for Artificial Intelligence & Big Data (AIBIG), Universiti Malaysia Kelantan (UMK). Before reading this bulletin, let's know a bit about AIBIG.

AIBIG is a research center of excellence (CoE) located in Kota Bharu, Kelantan. The establishment of AIBIG was initiated under the UMK Board of Directors in September 2017. As one of the research centers at UMK, our mission is to lead in the research and development of holistic talents and innovative technologies in AI and Big Data. The objectives of AIBIG are to conduct research and development in AI and Big Data towards the Fourth Industrial Revolution (4IR), engage with industry players in AI and Big Data, produce technopreneurs in AI and Big Data, and provide training in AI and Big Data for society.



One of the crucial initiatives that has been approved is the UMK IR4.0 Competence Centre (4IR CC), serving as a professional training center in AI and Big Data. Additionally, we boast facilities like the AIBIG Research Lab, which is tailored for postgraduate and postdoctoral research programs. Since the establishment of the 4IR CC in 2021, over 1,000 individuals, including students, staff, agencies, industries, and the public, have significantly benefited, particularly from our training and upskilling programs.

In addition to our focus on research and development, we've taken on the responsibility of spearheading the development of IT academic programs in the fields of AI, Data Science, and IoT over the past few years. These programs encompass Bachelor's, Master's, PhD, and University IR4.0 Courses. Commencing in 2021, they operate under the Faculty of Data Science and Computing at Universiti Malaysia Kelantan, City Campus, Kota Bharu, Malaysia.

Alhamdulillah, until now, we have been successfully involved in impactful research, comprehensive training initiatives, robust industry collaborations, partnerships, and engaging events, all serving to raise awareness of AI's profound impact. We firmly believe that our institute will continue to drive progress and make meaningful contributions to academia, society, and industry—a narrative you'll explore further in this inaugural edition of AI Spectrum.

Enjoy reading the AI Spectrum.

## FOREWORD BY AIBIG DIRECTOR

**Dr. Muhammad Akmal bin Remli**

Director Institute for Artificial Intelligence and Big Data (AIBIG)

## AI's Impact on Various Engineering Fields: A Transformative Technological Force

Artificial Intelligence (AI) has been rapidly transforming the landscape of various engineering fields, ushering in a new era of innovation and efficiency. AI, with its capabilities in data analysis, automation, and problem-solving, has become an indispensable tool in numerous engineering disciplines. In this article, we will explore how AI is making its mark on diverse engineering fields, from mechanical engineering and civil engineering to electrical engineering and beyond.

### Mechanical Engineering:

AI has had a profound impact on mechanical engineering, particularly in the design and manufacturing processes. Computer-aided design (CAD) software integrated with AI can generate and refine complex designs while optimizing for cost and performance. AI-driven robotics and automation systems have streamlined manufacturing, with robots performing tasks with precision and efficiency. Furthermore, predictive maintenance powered by AI helps keep machinery running smoothly and minimizes downtime.

### Civil Engineering:

In civil engineering, AI transforms how infrastructure projects are planned, designed, and managed. It processes vast data for site selection, materials optimization, and structural design. AI-driven simulations predict complex system behaviours, making construction safer and more cost-effective. It's also crucial for predictive maintenance, detecting issues in bridges and roads early, and ensuring public safety.

### Electrical Engineering:

AI enhances electrical engineering in power distribution, energy management, and smart grids. AI-integrated smart grids offer real-time monitoring and control, improving reliability and efficiency. AI predicts electricity demand and manages renewable energy sources. It's also pivotal in developing autonomous electric vehicles for future transportation.

### Aerospace Engineering:

AI has revolutionized aerospace engineering. It optimizes aircraft design, making them more fuel-efficient and eco-friendly. AI enhances flight simulations and control systems, ensuring safer and more efficient air travel. In maintenance, AI predicts when aircraft need service, reducing downtime. AI also boosts autonomous drones and aerial vehicles, expanding their abilities for tasks like surveillance and data collection.

### Biomedical Engineering:

AI is a game-changer in biomedical engineering, speeding up research and healthcare. It helps diagnose diseases from medical images, enhances prosthetics and medical devices, and accelerates drug discovery by predicting potential candidates.

### Software Engineering:

In the field of software engineering, AI is optimizing software development processes. AI-powered tools can automate coding tasks, detect bugs, and enhance code quality. AI-driven chatbots and virtual assistants are improving customer support and software user experiences.

In conclusion, AI has a significant and diverse impact on engineering fields. It boosts efficiency, enhances safety, and fuels innovation across mechanical, civil, electrical, aerospace, biomedical, and software engineering. As AI advances, it will play an even more prominent role, providing fresh solutions for complex challenges and shaping the future of engineering.

*"Artificial intelligence is here and being rapidly commercialized, with new applications being created not just for manufacturing but also for energy, healthcare, and oil and gas. This will change how we all do business." – Joe Kaeser.*



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Ts. Dr. Mazlan Mohamed, a Research Fellow at the University of Malaysia Kelantan's Institute for Artificial Intelligence and Big Data, is a distinguished expert in IOT and computer simulation, with a particular focus on Computational Fluid Dynamics (CFD) and Finite Element Analysis (FEA). With 18 years of dedicated experience as a Lecturer and Senior Lecturer in a prominent Public Higher Education Institution (IPTA), Dr. Mazlan holds a Doctor of Philosophy (PhD) degree from Universiti Malaysia Perlis and a Master of Science (MSc.) from Universiti Sains Malaysia. His expertise lies in Mechanical Engineering, specializing in CFD & FEA. Dr. Mazlan's extensive research efforts have resulted in the publication of over 157 research papers in Scopus and ISI (WoS/ Impact Factor) journals, boasting a cumulative Impact Factor exceeding 250. Furthermore, he has served as a reviewer for more than 105 articles, significantly articles from WoS ISI and Scopus Journals. Dr. Mazlan has also secured over 30 research grants, including contributions from international sources and industries. The cumulative total of these grants exceeds RM10 million. These remarkable accomplishments, along with his multifaceted contributions, underscore his prominent position in academia and research.

# Fellow's Message

## The AI Revolution in Product Design

Design plays a pivotal role in shaping our world, influencing everything from our clothing to the buildings we inhabit. Every design starts with creative imagination, followed by functional adaptations to meet daily needs, and is infused with a high aesthetic value. Therefore, designers require a continuous creative spark to keep their ideas fresh and responsive to customer demands.

Ideas evolve into the best designs through the iterative design process. The design process is a series of steps designers follow to create a product. It's like a journey designers undertake to bring their envisioned ideas to life for market-ready. This process is time-consuming as each step demands thorough designer research and customer approval.

However, this process can be expedited and streamlined with the advent of Artificial Intelligence (AI). AI's remarkable ability to perform human tasks has made it increasingly popular and widely accepted for daily work tasks. In the design context, AI can generate design ideas faster and more efficiently. It can also optimise product designs, focusing on aesthetics and product quality.

### Generative AI Technology

One of the trending AI technologies today is generative AI. It acts as a creative partner capable of producing images, text, or music based on specific inputs. Notable generative AI technologies include Midjourney, which can generate unique ideas; ChatGPT, enabling communication and text generation according to user preferences; and Soundful, which can create music from simple text input.

According to The Edge, art created by generative AI is challenging to distinguish from original designer works due to its equivalent aesthetic value. Moreover, with the assistance of generative AI, the creative content creation process can be expedited and simplified.

Recent research from the University of Pennsylvania found that generative AI can reduce workloads by up to 15% without compromising the quality of work. For instance, letter writing no longer needs to be done manually; AI assists in producing complete and engaging notes. Similarly, with poster production, there's no need to worry about image copyright issues because AI can create attractive posters and unique images not found elsewhere.



*"Design is not just what it looks like and feels like. Design is how it works." — Steve Jobs*

### AI-Enhanced Design

While Computer-Aided Design (CAD) and Computer-Aided Manufacturing (CAM) are familiar terms, AI-enhanced design is a relatively new concept in the design process. Generative AI technology, in particular, is regarded as a catalyst for introducing fresh and creative ideas to designers. It can also adapt designs to real-world environments.

With AI's assistance, designers can quickly and easily explore various design ideas. For instance, interior designers need only imagine their preferences and requirements, and generative AI technology can transform those visions into several design variations.



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Ts. Dr. Nooraziah Ahmad, a Research Fellow at the University of Malaysia Kelantan's Institute for Artificial Intelligence and Big Data, is a leading expert in Artificial Intelligence, particularly in Industrial Design. Her academic journey began with a Bachelor's degree in Computer-Aided Design and Computer-Aided Manufacturing from the University of Malaya in 2006. She pursued further education, earning a Master's degree in Plastic Product Design from London Metropolitan University in 2009 and a Ph.D. in Industrial Science from Universiti Tenaga Nasional in 2017. Before entering academia, Dr. Nooraziah gained practical experience at Panasonic Sdn Bhd as a Product Development and Design Engineer. Now, as a senior lecturer, she shares her extensive knowledge in Industrial Design and conducts research in CAD/CAM, Engineering Design, and Artificial Intelligence. Her research spans various areas, from optimizing manufacturing with AI to enhancing product design through smart manufacturing. Dr. Nooraziah also excels in Computer-Aided Design and Manufacturing, with expertise in 3D modelling software and 3D printing.

# Fellow's Message



Whether you desire a beautiful bedroom with specific furniture arrangements, colour schemes, and lighting, generative AI can help generate ideas that reflect all these desires. The same principle applies to product creation. Ideas provided to generative AI can enhance real-world product conditions with the combination of colours and textures as specified by the designer.

Designers can harness the generation of ideas through generative AI through prompt engineering. Prompts used in generative AI include design problem statements, design criteria, and customer demographics. AI attempts to understand the given prompts and adapts the best solutions through image generation.

The generated ideas result in various product variations that designers may have yet to considered creating. Designers can experiment with these ideas, test each variation, and refine the concepts produced without limitations. This process continues until a design aligns with customer demands and meets the design criteria. This process indirectly trains AI to learn the designer's preferences through provided prompts.

In the testing process, using simulated virtual environments for product designs is a cost-effective and time-saving approach. It eliminates the need for repeated physical production and practical testing. AI simulations accurately replicate real-world product performance and rapidly analyse results for key insights. Designers can address design issues and enhance complex designs before creating a physical prototype of the product.

## Are Designers Losing Jobs?

As generative AI is seen to assist designers in various stages, it has raised concerns about job security in the creative industry. According to a survey conducted by Harris Poll, 50% of designers express concerns about the potential for generative AI to replace their jobs in the creative industry.

Generative AI, however, still has limitations and can partially replace humans, especially in the creative industry. Compared to professional designers, AI-generated designs lack emotional value and cannot solve unique problems. Furthermore, no AI can function without human input. Generative AI requires feedback from humans to produce work. By using generative AI as a tool in design, designers can expand their creativity, explore new ideas, and create more innovative work. Designers must balance their understanding of generative AI and use this technology wisely.

In conclusion, generative AI streamlines the design process by generating, adapting, and exploring design diversity according to current trends and customer demands. However, AI-enhanced design still cannot replace aesthetic judgment, critical thinking, and the designer's ability to produce creative ideas. It is more about supporting and enhancing the designer's creativity and exposing designers to the latest technology to be integrated into the conventional design process.

## AI, Big Data, and Telemedicine: Shaping The Future of Healthcare

The integration of artificial intelligence (AI) and big data into the healthcare sector marks a transformative shift, setting the stage for a global revolution in healthcare delivery. These technological advancements are poised to enhance patient care, streamline operational efficiency, and advance medical research. The infusion of AI and big data accelerates decision-making and facilitates improved patient monitoring, fostering innovation and ultimately leading to better healthcare outcomes. Data has always been at the core of healthcare decision-making and delivery, and its significance remains unparalleled. The digitization and proliferation of healthcare data have resulted in an unprecedented volume of information, a critical catalyst for enhancing healthcare quality. With this wealth of data, there is a tremendous opportunity to support various medical and healthcare tasks. Advanced analytics, machine learning, and AI techniques have emerged as powerful tools for transforming this data into meaningful, actionable insights.

### Disease Surveillance

The convergence of AI and big data has unleashed a wave of innovation on both clinical and operational fronts. Machine learning algorithms and AI systems can now process and analyze vast datasets to predict, prevent, and optimize treatment for various health conditions. The healthcare industry is on the brink of monumental advancements by harnessing the synergy between extensive medical data and artificial intelligence.

Infectious disease surveillance has undergone a significant transformation through machine learning. This transformation includes disease surveillance, modelling, and addressing critical health concerns such as antimicrobial resistance. The rapid development and widespread application of AI and big data in public health have reached a pinnacle, with a defining moment during the 2019 coronavirus pandemic. The pandemic necessitated the development and utilization of AI-based medical devices, which played a pivotal role in surveillance, prevention, diagnosis, and health management, catalyzing global efforts to combat the crisis.

*"Infectious disease surveillance has witnessed a significant transformation through machine learning" - Dr. Dauda Goni*

AI has played an instrumental role in the realm of antimicrobial resistance (AMR) surveillance. Machine learning applications have been used to design new antibiotics and predict resistance patterns. These algorithms analyze extensive antimicrobial use and resistance, effectively identifying emerging resistance patterns and potential AMR hotspots. Such insights empower public health authorities to respond swiftly and efficiently to outbreaks of resistant infections. Moreover, machine learning aids in optimizing antimicrobial use within healthcare settings, assisting in selecting the most effective drug combinations for specific infections and predicting patients at risk of developing resistance, thereby reducing the overall burden of AMR. AI-driven models can simulate disease spread based on population density, climate, and healthcare facilities, aiding authorities in resource allocation and risk assessment. Big Data analysis of pathogen genomes facilitates tracking disease strains and identifying potential drug resistance. AI-driven models in the healthcare sector have proven to be invaluable in simulating the spread of diseases. These models consider a myriad of factors, including population density, climate conditions, and the availability of healthcare facilities. By analyzing these variables, AI can help authorities make informed decisions regarding resource allocation and risk assessment, especially during disease outbreaks.

### A tool for disease outbreak prediction

AI models and machine learning algorithms can predict the likely locations of outbreaks, enabling healthcare organizations and government agencies to strategically deploy medical personnel, equipment, and supplies to the areas that need them most. This ensures a more efficient response and helps prevent healthcare facilities in certain regions from becoming overwhelmed while others may need to be more utilised.



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Dr. Mohammed Dauda Goni, an Associate Fellow at the Institute for Artificial Intelligence and Big Data and a Senior Lecturer at the Faculty of Veterinary Medicine, Universiti Malaysia Kelantan, boasts an impressive academic journey. He holds a Ph.D. in Epidemiology and Public Health from Universiti Sains Malaysia, a Master's in Public Health from Universiti Putra Malaysia, and a Doctor of Veterinary Medicine (DVM) from the University of Maiduguri, Nigeria. Dr. Goni's dedication to research and public health shines through his academic achievements, including a nomination for the Best Ph.D. Thesis Award and recognition as the Best Oral Presenter at the 8th International Public Health Conference. He's also received the USM Global Fellowship Award for excellence in Public Health and epidemiology. His contributions span innovative research in health education, infectious diseases, and epidemiology. Beyond academia, he has served as the Head of Research at the African Institute of One Health Research & Diagnostics. His interests encompass machine learning, big data, epidemiology, food safety, outbreak investigation, and risk communication. Dr. Mohammed Dauda Goni continues to make a significant impact on public health through research and education in his role as a Senior Lecturer.

AI-driven models can aid in risk assessment by identifying areas at higher risk of disease transmission. By factoring in population density, travel patterns, and climate conditions, these models can predict potential hotspots for disease spread. To contain the disease's progression, authorities can implement targeted interventions in these areas, such as travel restrictions or heightened surveillance. The analysis of pathogen genomes has opened new possibilities for disease monitoring and management. Scientists can track the evolution of different disease strains by examining the genetic makeup of pathogens responsible for infectious diseases. This allows for a more comprehensive understanding of how a disease changes over time, which is crucial for vaccine development and treatment strategies. Identifying potential drug resistance is another critical benefit of Big Data analysis of pathogen genomes. As pathogens evolve, some strains may develop resistance to existing treatments. By closely monitoring the genetic makeup of these pathogens, researchers can identify early signs of drug resistance. This information is vital for adapting treatment protocols and developing new medications to combat the evolving strains effectively.

*"AI-powered systems, drawing data from diverse sources such as social media, satellite imagery, and health records, enable real-time monitoring of pilgrim movements and detection of disease outbreaks, contributing to enhancing public health surveillance. The fusion of AI, big data, and telemedicine is poised to redefine healthcare, offering a brighter and more accessible future for patients and healthcare providers. Technological advances, coupled with ongoing innovation, promise to transform the landscape of healthcare delivery and research."*

- Dr. Dauda Goni

## **Application of Telemedicine and Virtual Health**

This sector has become paramount in healthcare innovation. These approaches leverage technology to deliver medical services remotely, offering many benefits to patients, healthcare providers, and the healthcare system. The potential for enhanced healthcare access, improved patient outcomes, and increased efficiency in healthcare delivery is vast. While telemedicine has gained significant momentum, ongoing technological developments and evolving regulations will continue to shape its future.

The application of AI and machine learning ensures a positive user experience for patients and healthcare providers, a pivotal factor for widespread adoption.

AI-powered systems, drawing data from diverse sources such as social media, satellite imagery, and health records, enable real-time monitoring of pilgrim movements and detection of disease outbreaks, contributing to enhancing public health surveillance. The fusion of AI, big data, and telemedicine is poised to redefine healthcare, offering a brighter and more accessible future for patients and healthcare providers. Technological advances, coupled with ongoing innovation, promise to transform the landscape of healthcare delivery and research.

## The Intersection of AI and Climate Science in Enhancing Earth's Future Resilience

I'm honoured to join the multidisciplinary team at the Institute for Artificial Intelligence and Big Data (AIBIG) since March 2023. As a climate scientist who has been utilising high-performance computing in my research for the past nine years, it is my privilege to shed light on the pivotal role that Artificial Intelligence (AI) plays in addressing the pressing issues of the environment, climate and sustainability, and how AI holds the potential to shape the future of our planet.

### Intersection between the AI surge and increased climate awareness

AI is not a recent phenomenon, but it surged in popularity since the release of ChatGPT in November 2022. Demands for AI technologies across various sectors have grown exponentially, and the environmental sector is no exception. Fortunately, the surge in the AI revolution coincides with the increased awareness of climate change among the mass public. More countries and companies recognise the implications of climate change on the physical environment as well as its impact on the economic and social well-being of their nations, prompting them to accelerate the quest for sustainability with the aid of AI.

### AI's applications in earth and environmental science

AI's applications in earth and environmental science are multifaceted. For instance, AI's immense number-crunching ability is pivotal in numerical climate modelling, allowing us to simulate past and future climate scenarios and assess the impacts of climate change. With the growing volume of environmental data encompassing atmospheric, oceanic and space profiles collected from a range of satellite constellations to Internet-of-Things sensors worldwide, AI techniques such as machine learning and deep learning can be applied to these data to predict extreme weather events, thus providing early warnings and enhancing disaster preparedness.

### AI-driven solutions

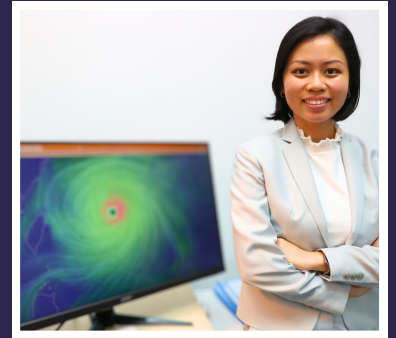
Looking ahead, the role of AI in the environment, climate, and sustainability is poised to become even more critical. As we face the challenges of a rapidly changing climate, depleting natural resources, and a growing global population, AI-driven innovations will be essential in driving solutions to these complex issues. Coupling multidisciplinary research efforts with AI's potential will pave the way for a more resilient and sustainable future for the Earth. The ability to adeptly navigate and utilise AI tools and methodologies has become an invaluable asset in tackling the intricacies of environmental challenges.

### Future of work: Scientific and technical expertise

That said, there is a rising demand for professionals who possess a blend of domain knowledge and technical skills. Beyond conventional scientific training, individuals in this field are now expected to gain proficiency in programming languages, data analytics, and machine learning frameworks. The integration of technical expertise with domain knowledge facilitates a more holistic and efficient approach to problem-solving. This dual proficiency not only aids in the creation and implementation of advanced AI models but also ensures the translation of scientific insights into practical solutions.

The dynamic landscape of environmental science and sustainability necessitates a workforce capable of leveraging AI technologies to innovate and contribute significantly to the global initiative in addressing environmental issues.

At AIBIG, we leverage the convergence of science and technology, and we are committed to fostering a collaborative environment that nurtures both scientific and technical acumen to pioneer transformative solutions for a sustainable future.



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Dr Marianne Leong (or Dr Mae for short) is an interdisciplinary scientist in earth and data science. She obtained her Bachelor's degree in Natural Resources Science at Universiti Malaysia Kelantan and pursued her PhD in Earth and Environment (Atmospheric Science) at the University of Leeds, UK.

Using high-performance computing, she unravels intricate land-atmosphere interactions through numerical modelling and conducts in-depth analyses of climate data to assess physical climate changes. With over nine years of interdisciplinary professional experience, her work has earned her recognition as a YSEALI woman leader in Climate Resilience and established herself as a consulting expert in Research Infrastructures for the ASEAN region. She was awarded the 'Best Student Award' in the EU-ASEAN High Performance Computing School for two consecutive years in 2021 and 2022.

Her external roles include mentoring in the Microsoft 'Code; Without Barriers' that helps women break into tech. She also serves as an Associate at a local civil engineering consultancy firm where she offers consulting on enhancing the resiliency of engineering design through climate intelligence.

## Designing the Interiors of the Future: Zero Energy Buildings

The interior of the future is a concept that merges the principles of green design, sustainability, and near-zero energy building (NZEB), redefining how we live, work, and interact with interior spaces. This innovative approach to interior design carries profound implications for both our immediate surroundings and the broader environment.

At its core, this design philosophy prioritizes sustainability and eco-friendliness. The use of renewable materials and the reduction of waste become fundamental. The creation of healthy indoor air quality is emphasized through proper ventilation and toxin-free materials. Implementing passive design strategies like maximizing natural light and ventilation is pivotal in reducing energy consumption.

In this future vision, every aspect of interior design considers environmental impact. From furniture and decor choices to the construction materials used, sustainability is paramount. Eco-friendly interiors aim to reduce the carbon footprint and promote responsible resource use. The emphasis on sustainable and renewable materials further minimizes the long-term environmental impact of the interior.

Moreover, adopting a near-zero energy building approach means interior space contributes to energy efficiency and conservation. This includes integrating smart technologies to regulate temperature, lighting, and power consumption. The focus is on creating a harmonious relationship between the interior space and the environment. Solar panels, energy-efficient appliances, and advanced insulation techniques help to reduce the reliance on non-renewable energy sources. The impact of these practices extends beyond the interior space itself.

By consuming less energy and producing fewer emissions, sustainable interior design contributes to a healthier planet. It aligns with global efforts to combat climate change, reduce pollution, and conserve natural resources. The eco-friendly interior serves as a model for sustainable living, inspiring individuals and businesses to adopt responsible practices.

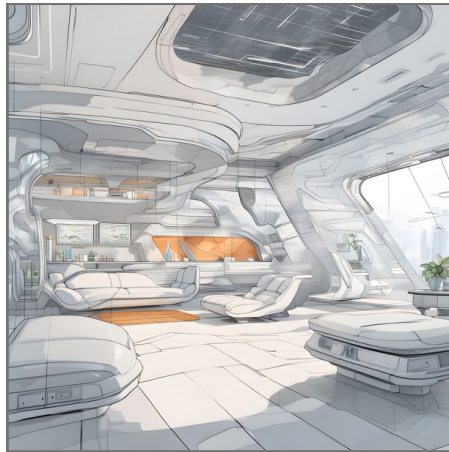


Image generated through Freepik.com.

*"...the interior of the future is a harmonious blend of green, sustainable, and near-zero energy building principles."*

- Ts. Salmiah Aziz

Moreover, embracing NZEB strategies means not only reducing energy costs but also supporting a more resilient and efficient energy grid. With the integration of renewable energy sources, like solar panels or wind turbines, the interior of the future can even become a net energy producer, benefiting the larger community.

In conclusion, the interior of the future is a harmonious blend of green, sustainable, and NZEB principles. It represents a transformative approach to interior design that not only improves the quality of our living spaces but also carries a significant positive impact on the environment and the way we use resources. This forward-thinking design philosophy offers a glimpse into a more sustainable and eco-conscious future, one where our interior spaces are not only beautiful but also environmentally responsible.

*"Eco-friendly interiors aim to reduce the carbon footprint and promote responsible resource use. The emphasis on sustainable and renewable materials further minimizes the long-term environmental impact of the interior."*



### ASSOCIATE FELLOW

Ts. Salmiah Aziz

Green Architecture / Interior

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Phone: +6011-28804219

Salmiah Aziz is a proud Kelantanese from Malaysia. She teaches interior architecture at Universiti Malaysia Kelantan (UMK) and also works with Sagaleria Studio in Kuala Lumpur (KL) and Kelantan, remotely contributing to interior design, graphics, and sustainable projects. Her passion lies in art and design. She holds a master's degree in Green Architecture from UiTM Perak. She is currently pursuing a PhD at Unisza in engineering, focusing on sustainability, smart energy practices, digitalization, and renewable energy for sustainable architecture, specifically nearly zero energy buildings (NZEB). Her knowledge and experience enable her to manage projects related to sustainable and green design, spanning art, interior design, furniture, architecture, and graphic design. She is open to collaborating on green projects with various parties and welcomes ideas, issues, or input for joint efforts. Feel free to contact her for further discussion.

## The Core of Artificial Intelligence Research at AIBIG



**Muhammad Akmal Remli, Ph.D.**  
Director Institute for Artificial Intelligence and Big Data (AIBIG)  
Email: akmal@umk.edu.my  
Phone: +6012-7316310

Dr. Muhammad Akmal Remli serves as the Director of the Institute for Artificial Intelligence and Big Data (AIBIG) at Universiti Malaysia Kelantan (UMK). The AIBIG Institute is a Center of Excellence (COE) specializing in research, development, and training in Artificial Intelligence (AI) and Big Data.

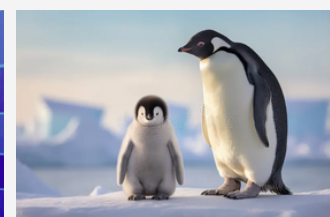
Dr. Akmal became a fellow researcher at AIBIG in early 2020, and in 2021, he assumed the role of leading AIBIG. Additionally, he holds the position of senior lecturer at the Faculty of Data Science and Computing, UMK. He earned his Master's and PhD degrees in Computer Science from Universiti Teknologi Malaysia in 2014 and 2018, respectively. Subsequently, he worked at Universiti Malaysia Pahang from 2018 to 2020. In 2016, he undertook a research attachment at The Bioinformatics, Intelligent Systems, and Educational Technology (BISITE) Research Group at the University of Salamanca, Spain, focusing on cancer bioinformatics. His primary research interests encompass artificial intelligence, data science, business intelligence, and computational systems biology. He has authored numerous scientific research papers indexed by Scopus and Clarivate Web of Science, including publications in journals such as Expert Systems with Applications (ESWA) and Engineering Applications of Artificial Intelligence (EAAI).



Recently, he has actively participated in multiple projects utilizing generative AI in Bioinformatics for computational biomarker discovery and generating synthetic cells. He received a high-impact research grant of RM120,000 from the Sultan Mizan Antarctic Research Foundation (YPASM) to conduct AI research in the Polar regions, specifically the Antarctic and Arctic.



He serves as the principal investigator for this research and collaborates with various local and international institutes. Another recent achievement in his AI work is receiving an international grant from the France-Malaysia Collaboration Programme for Joint Research 2023 (MyTIGER). This two-year joint research program between Malaysia (UMK) and France (Universite Paris Dauphine) focuses on generative AI for creating new synthetic cells in genomics data. It is funded at RM90,000, starting from 2023 until 2025. Additionally, Akmal is currently concentrating on developing algorithms based on the transformer model to predict stock price movements. The recent advancements in generative AI using the transformer model show promise in the field of the stock market. As a result of this research, he was awarded a Ministry of Higher Education Fundamental Research Grant Scheme (FRGS) worth RM70,000, with a duration of two years. He also actively collaborates with various partners and collaborators from industries and academic institutions, both locally and globally. This collaboration includes editorial journals, scientific conference committees, publications, research work, and as a visiting research fellow at the Centre for Research, Innovation, Development, and Entrepreneurship (CRIDE) LTD, UK.



# ABOUT AIBIG

Institute for Artificial Intelligence and Big Data (AIBIG) was established in 2017 as an initiative under the UMK Board of Directors. AIBIG serves as a reference centre for AI and Big Data research, focusing on research and development, academic programs, professional training, the digital industry and technopreneurship. The institute is designed to create a dynamic research ecosystem toward the 4th Industrial Revolution (4IR), specifically in Artificial Intelligence, Big Data, Data Science, Machine Learning, and the Internet of Things (IoT).

The institute collaborates intensively in research projects and digital innovation with companies and universities, both local and international. In designing the relevant academic curriculum for the future, AIBIG has established partnerships with top IT players such as Microsoft, Alibaba, and Huawei. This ensures our academic and research programs are relevant to the industrial needs. AIBIG also has a numbers of research fellows and associate fellows with an extensive range of professional backgrounds that give the institute its multidisciplinary character.

The AIBIG institute is responsible for the development of the IT academic programs (undergraduate and postgraduate) as well as the establishment of the Data Science department at UMK. Moreover, AIBIG has coordinated numerous IT and digital innovation development, competitions, events, and training. The institute looks forward to successful partnerships and collaborations with all interested parties in our continuous effort to develop AIBIG as a unique, sustainable, and innovative institute with a strong international presence.



■ **Vision**

To become a global reference centre for research and innovation in the field of artificial intelligence and big data.

■ **Mission**

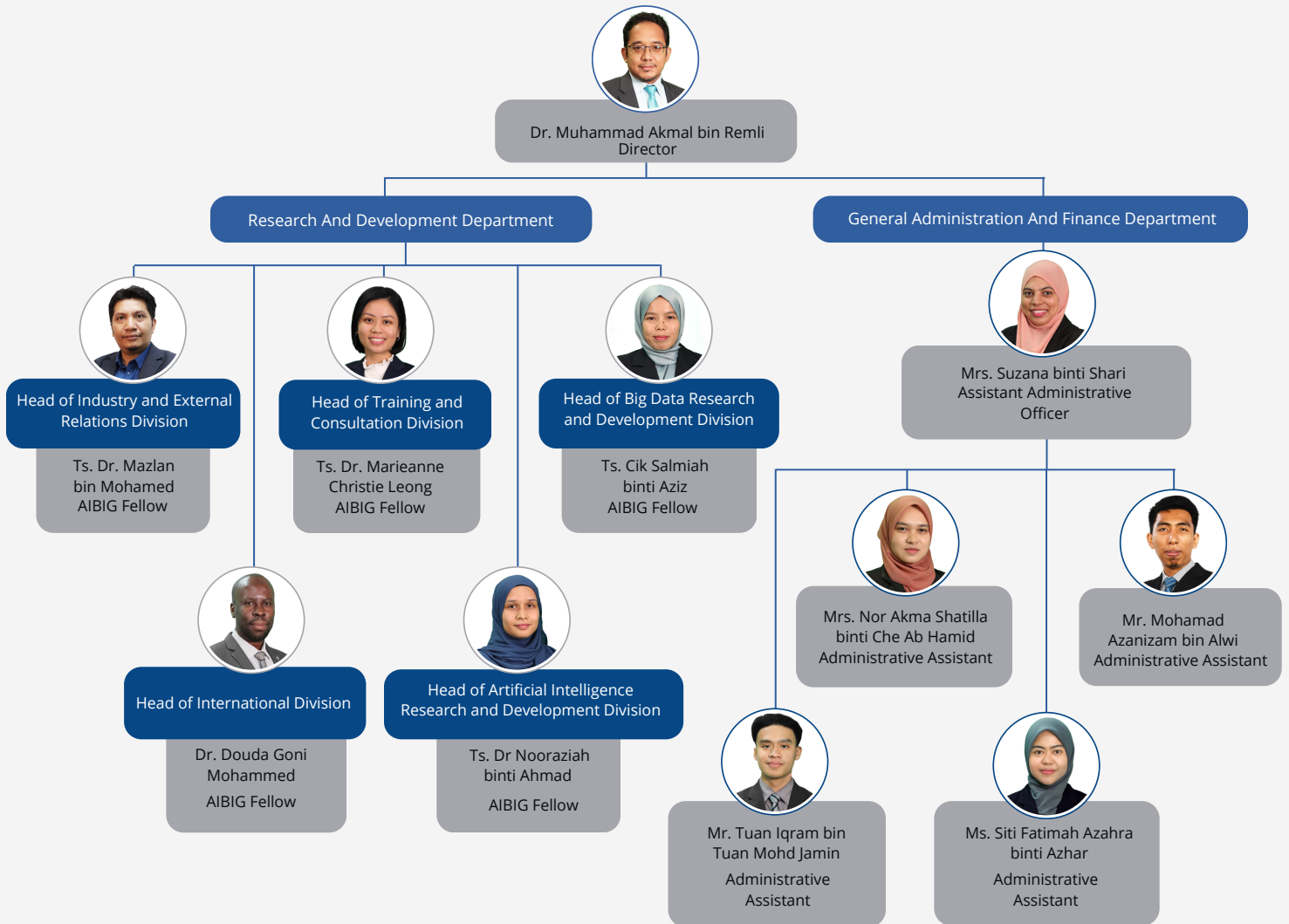
To cultivate strong, ongoing relationships with stakeholders and parties of interest, empowering communities, governments, and industries to achieve exceptional levels of productivity and excellence. This is accomplished through innovative research, talent development, and applying artificial intelligence and big data technology across various domains.

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# Organisation Chart



## Research Members:

- |                                                                                                                                                                      |                                                                                                                                                               |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p>1. Prof. Madya Dr. Hasyiya Karimah binti Adli (Associate Professor) - FSDK</p> |  <p>5. Dr. Fakhidah binti Ridzuan (Senior Lecturer)- FSDK</p>              |
|  <p>2. Prof. Madya Dr. Nooraini binti Yusof (Associate Professor)- FSDK</p>        |  <p>6. Dr. Nurzulaikha binti Mahd. Ab. Lah (Senior Lecturer)- FSDK</p>     |
|  <p>3. Ts. Dr. Hadhrami bin Ab Ghani (Senior Lecturer)- FSDK</p>                   |  <p>7. Mr. Khairul Nizar Syazwan bin Wan Salihin Wong (Lecturer)- FSDK</p> |
|  <p>4. Ts. Dr. Nor Alina binti Ismail (Senior Lecturer)- FSDK</p>                  |                                                                                                                                                               |

## AIBIG Awarded by Yayasan Penyelidikan Antartika Sultan Mizan (YPASM) Research Grant



8 MARCH 2023

International Forum on Antarctica & Climate Change at Dewan Sultan Mizan, 3 August 2023 - Institut for Artificial Intelligence and Big Data (AIBIG) was awarded the Yayasan Penyelidikan Antartika Sultan Mizan (YPASM) Research Grant. The project, titled "Computational Modeling of Metagenomics in Polar Microbiota for Biomarkers Discovery through Generative Artificial Intelligence," secured funding totaling around RM120,000. Collaborative partners include Universidad de Salamanca Spain, United Arab Emirates University, and local institutions (UM and UKM).

The research is led by Dr. Muhammad Akmal Remli, alongside co-researcher Ts. Dr. Marianne Christie Leong. This research involves developing data integration techniques for polar regions and utilizing generative AI methods on polar data to discover biomarkers crucial in drug discovery. The anticipated outcome is the generation of novel findings that will significantly benefit pharmaceutical and healthcare advancements in Malaysia.



# Junior Leadership Executive Course for Surveyors and Geospatialists, Junior LEXUS



16 FEB 2023

The launch of the Junior Leadership Executive Course for Surveyors and Geospatialists (Junior LEXUS) at the Institute for Artificial Intelligence and Big Data (AIBIG), Universiti Malaysia Kelantan (UMK), was a significant event graced by the Director-General of the Malaysia Department of Survey and Mapping Malaysia (JUPEM), Sr. Mohammad Zaki bin Mohd Ghazali. The program, spanning two weeks, saw 48 participants from JUPEM across Malaysia being trained by a collaborative team of six instructors from different universities, covering topics like Data Analytics, Data Science, and Dashboard Development. This initiative serves as a testament to the valuable collaboration between academia and the industry, focusing on enhancing the skills and knowledge of surveyors and geospatialists in the realm of AI and Data Analytics.

The collaborative effort led by AIBIG, alongside trainers and researchers, successfully empowered over 40 dedicated surveyors and geospatialists through the Junior LEXUS program. Commencing in February and concluding in September, this initiative aimed to equip potential leaders with advanced technology and expertise in AI and Data Analytics, promising to drive excellence and innovation in their respective roles. Their dedication and commitment to enhancing their skills deserve recognition, marking a milestone in integrating technology and expertise in surveying and geospatialism.

# Microsoft Certified: Power BI Data Analyst

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*Training & certification*  
**Program Empowering Graduates (KPT-PACE)**

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- Data Visualization
- Data Analysis
- Data Modeling

**RM2700** **FREE** for students

**DATE:** 2 - 6 AUGUST 2023 (WEDNESDAY-SUNDAY)

**LOCATION:** UMK CITY CAMPUS, PENKALAN CHEPA

**BENEFITS:** MEALS AND ACCOMMODATION PROVIDED

**REGISTER NOW** **SCAN ME**

**DEADLINE: 18 JULY 2023**

For any inquiries please contact:  
 1. Tn. Dr. Marikannan (+610-921 1929)  
 2. En. Syazwan (+6011-9631 1330)

2 - 6 AUG 2023

Faculty of Data and Computer Science (FSDK), in collaboration with Institute for Artificial Intelligence and Big Data (AIBIG), recently conducted a Microsoft Power BI Data Analyst professional course at C202DT Auditorium, UMK Kota Campus. 100 students have participated in the program and successfully obtained Microsoft Power BI Data Analyst professional certification. The 5-day program concluded with the Award Ceremony and Closing Ceremony of the KPT-PACE Generator Program. The Deputy Vice-Chancellor (Academic and International), Prof. Dato' Dr. Nik Maheran Nik Muhammad, located at The Grand Renai Hotel, Kota Bharu, Kelantan. Also in attendance were FSDK Dean, Dr. Hasyiya Karimah Adli; Deputy Dean of FSDK, Ts. Dr. Hadhrami Ab Ghani; Director of the Center for Career Development, Counseling and Alumni, Prof. Associate Dr. Mohd Fadil Mohd Yusof; and Director of AIBIG, Dr. Muhammad Akmal Remli. The involvement of the entire administrative department staff and the collaboration of two fellows from AIBIG enriched the program's atmosphere.



With this successful program, AIBIG and FSDK once again prove their commitment to providing high-quality education in data analysis and information technology. Participants now possess solid knowledge and relevant skills to enter the professional world as a Microsoft Power BI Data Analyst. They serve as role models for the next generation, who will continue to push the boundaries in the world of data analysis and technological innovation. To everyone involved, thank you for your endless efforts and dedication. This innovative thinking and collaborative spirit will remain the foundation for future growth and success. May their future journeys be filled with glorious achievements and lasting contributions to the world of data analysis and technology.



# Industrial Research Institute Of Artificial Intelligence and Big Data (AIBIG) Visit to Tok Bali Supply Base (TBSB) Sdn Bhd



12 MARCH 2023

A collaborative visit of UMK's Institute for Artificial Intelligence and Big Data (AIBIG) was held at Tok Bali Supply Base (TBSB) on 12 March 2023. TBSB is a rapidly developing supply service base industry in Kelantan that focuses on three entry points for oil exploration and production and gas, namely the North Malay Basin (NMB), Malaysia-Thailand Joint Development Area (MTJDA) and Malaysia – Vietnam Commercial Arrangement Area (MVCAA). Discussions focus more on academic-industry ecosystem collaboration that can have a positive impact on both parties.

Among those discussed is how academic involvement, especially in providing training, research and technology that can help TBSB in optimizing the supply chain, industry linkages, increasing knowledge, the use of analytical data and scientific data in increasing productivity as well as other opportunities that will be explored together. The AIBIG team was also taken to inspect TBSB's ecosystem and environment, led by TBSB's General Manager, Nur Hasmin Kamarollzaman. TBSB and AIBIG working together opens doors for future partnerships between TBSB and UMK.



# TEMU ANWAR



18 JUNE 2023

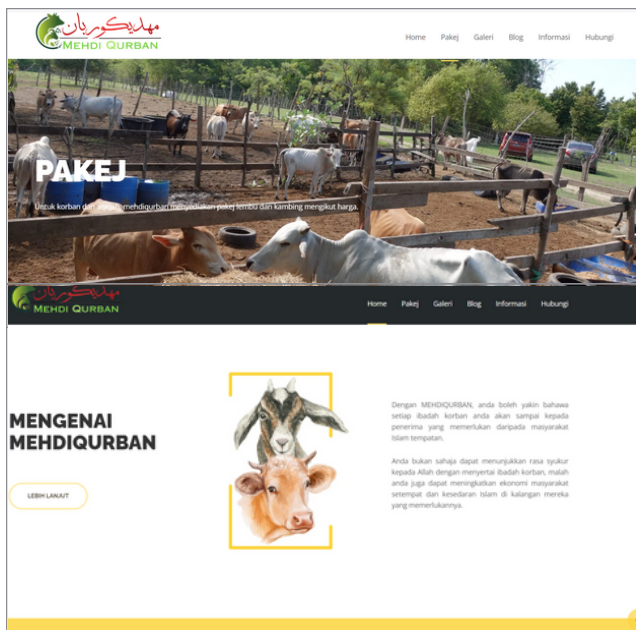
The AIBIG booth attracted the attention of students and undergraduates at Dewan Tuanku Chancellor (DTC), UMK Bachok by exhibiting artificial intelligence (AI) technology in industrial revolution 4.0. Products on display include Robotic Arm and Trash Detector using Video Webcam. The prowess of AI in this innovation has attracted the interest of the students present. Robotic Arm technology that uses AI has great potential to improve and automate industrial processes. With its ability to detect and manipulate objects with high precision, this robot can provide higher efficiency and productivity in various sectors. In addition, Trash Detector using Webcam Video also shows the excellent ability of AI in identifying and separating different types of garbage. With this system, solid waste management can be improved with significant time and energy savings. The students present welcomed the exhibition and acknowledged the importance of AI in the future. They are confident that AI technology will continue to be the main driver in the industrial revolution 4.0 and will provide various new opportunities and challenges in the economic and education sectors in Malaysia. With this exhibition, Universiti Malaysia Kelantan also showed their commitment in leading the development of AI technology in Malaysia. This is expected to encourage more research and innovation in this field as well as produce high-quality AI experts to drive the country's growth and excellence in the digital era.



# Digital Transformation for Small and Medium Enterprise

14 FEB 2023

An innovative team led by Project Leader Ts. Dr. Nooraziah Ahmad, specializing in digital strategies, revolutionized the operational landscape for small businesses through a rebranding initiative and subsequent digital transformation. We focused on revamping the traditional Korban sales during Hari Raya Haji, aiming to modernize the process and enhance branding for MehdiQurban. Utilizing a Facebook page and a dedicated website, our goal was to streamline and elevate the sales process while improving the brand identity.



The outcome was remarkable! Not only did the rebranding and digitization strategy attract a broader customer base, but it also resulted in a significant surge in sales, surpassing all previous records. The user-friendly online platforms played a crucial role in achieving this success, generating far more profit during the festive season than initially anticipated. This success story is immensely significant, highlighting the transformative potential of technology in reshaping small business dynamics and redefining brand presence.

By utilizing technology to adapt a traditional practice to contemporary standards and rebranding the approach, the team showcased the effectiveness of a well-executed digital strategy. The impact extends beyond a single business; it serves as an inspiring model for other small enterprises. It showcases how the integration of technology, along with rebranding efforts, can substantially elevate sales and overall success, fundamentally altering business operations and brand perception. This success story reinforces the power of leveraging technology and rebranding to empower small businesses to achieve remarkable milestones, reshaping their operations and branding in the current business landscape.



# The Honorable Minister of Higher Education's visit to Universiti Malaysia Kelantan (UMK)



26 JUL 2023

Institute for Artificial Intelligence and Big Data (AIBIG) was invited to organize an exhibition during the working visit by the Honorable Minister of Higher Education to Universiti Malaysia Kelantan (UMK). Some of the products exhibited included the Robotic Arm, Lego Mindstorms, Intelligent Waste Detector using Computer Vision, and Smart Powder Filling System. Among the visitors to AIBIG's booth were the Chairman of the University Board of Directors, Dato' Dr. Hassan Basri Awang Mat Dahan, UMK Board of Directors Member, Datuk Hj. Zaluzi bin Sulaiman, Deputy Secretary General (Policy), Ministry of Higher Education, Dato' Dr. Haji Megat Sany bin Megat Ahmad Supian, Deputy Secretary General (Management & Development), Ministry of Higher Education, Datuk Dr. Mohd Zabri bin Yusoff, Deputy Director General of Higher Education (Academic & Development), Ministry of Higher Education, Dato' Dr. Norzaini binti Azman, and the Vice-Chancellor of UMK, Prof. Dato' Dr. Razli Che Razak.

# UMK TECHNOCONNECT CARNIVAL 2023

7 & 8 JUNE 2023



The UMK TechnoConnect 2023 carnival has been organized by Faculty of Data Science and Computing (FSDK) in collaboration with Institute for Artificial Intelligence and Big Data (AIBIG), UMK Entrepreneurship Institute (UMKEI), Institute for Small and Medium Enterprise (ISME) and Centre of Entrepreneurship Education and Development (CEED). On this occasion, AIBIG, in collaboration with FSDK, has organized an Artificial Intelligence (AI) & digital IR 4.0 Product Exhibition at the IR 4.0 Competence Center (IR 4.0 C.C). Various products that have been exhibited are Robotic Arm (Dobot Magician), Smart Powder Filling System, Rubbish Detector using Video Webcam, Lego Mindstorm and Jet Racer Kit. Virtual Reality (VR) and Drones are the most attractive to many students.

Throughout the two days of the exhibition, the Deputy Vice-Chancellor (Research and Innovation), TNCPI which is Prof. Ts. Dr. Arham Bin Abdullah and representatives from Fatoni University and AntsBees Sdn. Bhd had time to visit IR4.0 CC to see the products on display. In addition, this exhibition was further enlivened by the presence of students from FSDK, UMK, as well as school students consisting of SMK (A) Falahiah, MRSM Tumpat, Pasir Mas Vocational College. Thank you to everyone involved in making this UMK TechnoConnect 2023 carnival and this Digital Artificial Intelligence (AI) & IR 4.0 Product Exhibition a success. Hopefully, this exhibition can open eyes and attract students to explore more in the world of artificial intelligence and big data.





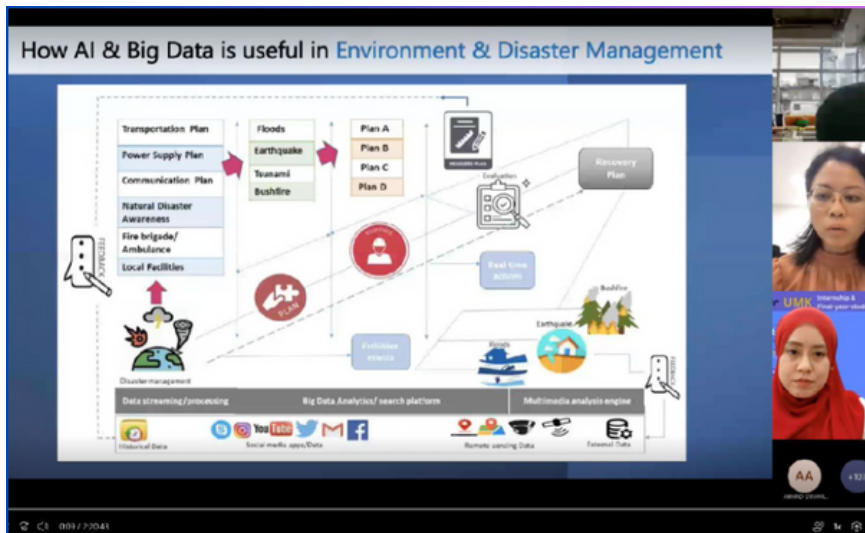
## Data Science Workshop for Malaysia's JUPEM Executives

13 - 24 FEB 2023

A successful workshop on "Dashboard Analytics: Building Data Science Insights Towards Strategic Decision-Making" was recently held under the Executive Leadership Program for Surveyors and Geospatial Professionals (LEXUS), organized by the Department of Survey and Mapping Malaysia (JUPEM) in collaboration with UMK Institute for Artificial Intelligence and Big Data (AIBIG). The two-week program, conducted in person at UMK Campus Kota from February 13 to 24, 2023, brought together 48 officers from JUPEM across Malaysia. Six instructors from three universities (UMK, UMP, and UTM) provided theoretical and hands-on training, covering topics such as Enterprise Architecture, Python Programming, Exploratory Data Analysis, and Dashboard Analytics Development. The program aimed to introduce participants to the world of Data Analytics and Data Science, teaching them fundamental data management techniques to create informative dashboards and apply data analysis within their organizations. Additionally, it aimed to enhance participants' understanding of the importance of data analytics in decision-making for their respective organizations.



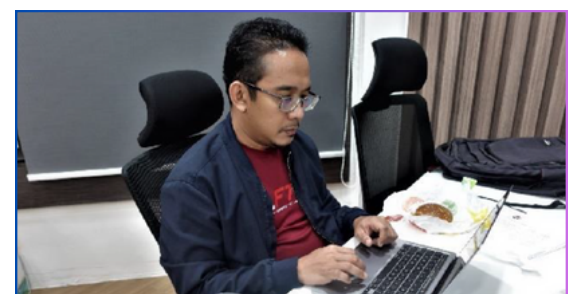
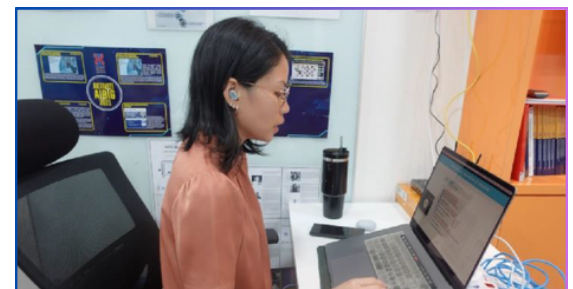
# Microsoft Azure AI Fundamentals Training Program



19 - 21 MARCH 2023

Institute for Artificial Intelligence and Big Data (AIBIG) and the Faculty of Data Science & Computing (FSDK) at UMK deserve hearty congratulations for successfully organizing a 3-day Microsoft Certification training on Azure AI Fundamentals from March 19th to 21st, 2023. The participants did a great job, and it was fantastic to see their enthusiasm for topics like Computer Vision and Machine Learning. The interactive lab sessions and the collaborative learning environment clearly left a positive impact. We're thrilled many participants enjoyed working on the labs with their friends. Best of luck to all the participants as they continue their self-paced training and certification exams; their future in AI and Big Data looks promising!

The 'Microsoft Azure AI Fundamentals' Training Program, conducted by AIBIG from March 19th to 21st, 2023, both online and at the IR4.0 Competence Center, was a resounding success. This program aimed was to introduce students to Microsoft Azure and provide them with essential skills for tackling real-world machine learning challenges within the Azure environment. This training has equipped participants with valuable knowledge and skills in the field of AI and cloud computing.



# Internet of Things (IoT) Workshop: Develop First IoT System

13 - 14 SEPT 2023

We're thrilled to announce the successful completion of our Internet of Things (IoT) Workshop, held on September 13-14, 2023, at the 4IR Competence Centre, Institute for Artificial Intelligence and Big Data (AIBIG), UMK City Campus. Twenty (20) participants have joined the workshop, including professors, AIBIG interns, industry professionals, and even the youngest member, a 16-year-old high school student. Over a 2-day workshop, the participants learned about the concept of IoT and its application in real-world problems. Together, AIBIG has excelled in fostering a vibrant and dedicated community at the forefront of the IoT landscape. This program has equipped participants with a solid IoT foundation and will guide participants' future career endeavors.

The speakers and facilitators, Ts. Dr. Mohd Izham Mohd Jaya and Ts. Dr. Azlee Zabidi are a certified IoT expert holding professional certifications and reference experts at AIBIG, UMK. The Program Advisor and Director of AIBIG, Dr. Muhammad Akmal Remli, expressed hopes for the continuity of these IoT courses. He anticipates future IoT-related course series to benefit all participants. Additionally, through the collaboration established with Universiti Malaysia Pahang (UMP) for organizing these IoT courses, potential collaborations with relevant stakeholders are envisioned.

The IoT has brought about significant transformations in various sectors of life, from smart homes to industries, healthcare, agriculture, and more. This workshop provides participants with knowledge related to the concept, theory, and development framework of IoT and smart systems, as well as hands-on practical exposure to developing IoT systems using sensors, databases, servers and many more. Participants will also be exposed to how to develop their own IoT system. In the workshop, the participants learned IoT core concepts and its architecture, Microcontroller, sensors and actuators, Setting up Microcontrollers and sensors, Basic IoT communication protocols and Databases for IoT.

The poster features the AIBIG logo and the title 'INTERNET OF THINGS (IOT) WORKSHOP DEVELOP FIRST IOT SYSTEM'. It lists application areas: [Smart Farming], [Smart House], [Smart Cities], [Digital Healthcare], and [Smart Manufacturing]. The event dates are Wednesday, September 13, 8:30 AM to 5:30 PM, and Thursday, September 14, 8:30 AM to 5:30 PM. The fee is RM1500 for students and RM500 for others. The poster includes a QR code for registration, a 'LIMITED TO 20 SEATS ONLY' badge, and a list of topics participants will learn, such as IoT core concepts, microcontroller setup, and building an IoT system with sensors and databases. It also mentions strategic partners like UPM and FSBK.



# Applied AI Research Across Disciplines: Publishing Your First High-Impact Journal Papers in AI



19 JUNE 2023

This workshop serves as a valuable platform for providing exposure to researchers and lecturers, enlightening them on how they can seamlessly integrate elements of Artificial Intelligence (AI) into their research endeavours across diverse fields. With the pervasive applications of AI in domains ranging from language and creativity to agriculture, economics, biology, engineering, tourism, religion, and beyond, participants will gain a comprehensive understanding of how AI can enhance their work. Moreover, this workshop aims to guide attendees through crafting impactful AI-themed manuscripts, ensuring that their research output can contribute significantly to the advancement of knowledge in their respective fields. It's a testament to the ever-expanding reach and potential of AI in fostering innovation and breakthroughs in various domains.



**ARTIFICIAL INTELLIGENCE (AI) RESEARCH WORKSHOP**

APPLIED AI RESEARCH ACROSS DISCIPLINES: PUBLISHING YOUR FIRST HIGH-IMPACT JOURNAL PAPERS IN AI

19 JUNE 2023  
10:00AM - 12:00PM  
IR4.0 COMPETENCE CENTRE, UMK KAMPUS KOTA

Open To:  
• Lecturers and Researchers  
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CPD point for all staff  
E-Certificate will be provided

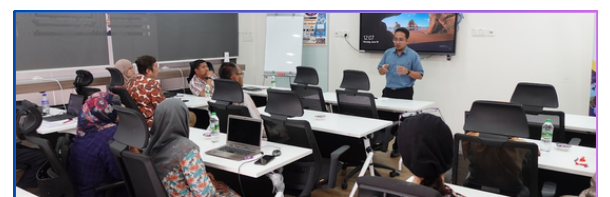
Organized by  
UMK Institute for Artificial Intelligence and Big Data (AIBIG)  
Co-Organized by  
UMK Faculty of Data Science and Computing (FSDK)

Register for **FREE**  
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DEADLINE: 18 JUNE 2023

**LIMITED TO 20 SEAT ONLY**

**DR. MUHAMMAD AKMAL BIN REMLI (INSTRUCTOR)**  
Director  
Institute for Artificial Intelligence and Big Data (AIBIG)



# 3D Printing Odyssey at Startup Open Day 2023

28 - 29 NOV 2023

Ignite Venture Lab's Startup Open Day 2023, hosted by Universiti Malaysia Kelantan Entrepreneurship Institute (UMKEI) and The Office of Library and Knowledge Management UMK, illuminated the path to digital innovation for students. The event featured captivating content like Talk Shows, Startup Pixels, Mobile Apps Development, and Startup Showcase Exhibition. Ts. Dr. Nooraziah Ahmad was one of the speakers at a two-day event held at the Auditorium of UMK Library in Bachok, where she delivered an insightful talk on the transformative applications of 3D printing. Concurrently, over the course of two days, Dr. Nooraziah and AIBIG interns, Shazleen Arissa Mohd Saidi and Siti Zukrina Zulkefli, ardently shared their expertise on 3D printers with interested students at the 3D printing exhibition. This immersive experience aspired to cultivate a generation inspired and ready to venture into digital entrepreneurship.



## Growing Together: Future of AIBIG

This year, our AIBIG Center of Excellence (COE) family has grown to 16 members, including research fellows, administrative staff, and students. Our focus remains on multidisciplinary research, with team members from various fields and faculties, such as Computational Systems Biology, Product Design, Earth Science, Engineering, Public Health, and Interior Design. At the heart of it all, our core expertise in AI and Big Data serves as a unifying force across these diverse domains. We do more than research – we're here to create a positive impact beyond our lab. AIBIG is dedicated to spreading awareness of AI and Big Data in our community, among agencies, and in industries. We offer training, consultations, and informative programs to make these technologies more accessible and understandable. Operating from Kelantan, Malaysia, we embrace the challenges posed by our location head-on, particularly in sourcing and nurturing skilled talents. However, we view these challenges as opportunities for growth and are determined to overcome them.



# AIBIG Strategic Planning Workshop 2023 (AIBIG-SPARK)

15 - 16 MARCH 2023

A strategic planning workshop for the Institute for Artificial Intelligence and Big Data (AIBIG) was conducted on March 15 and 16, 2023. The workshop occurred at the UMK Bachok Campus Library Office and the 4IR Competence Centre at the UMK Kota Campus.

The objective of this two-day workshop was to 'revisit' AIBIG's short-term and long-term planning to transform AIBIG into a multidisciplinary research institute that can make a high impact on universities, society, industry, and the country. This transformation will be based on AI and Big Data technology. Various initiatives are planned for this year and the next few years to ensure the successful realisation of this plan.



2023  
-through-  
2027

## STRATEGIC PRIORITIES



**CORE PROJECT 1**

**FOOD PRICE REGULATOR**

To provide an affordable food supply to consumers while ensuring suppliers get a reasonable profit on their produce.



**CORE PROJECT 2**

**CUSTOMER PREDICTIVE ANALYTICS**

Optimize customer engagement and decision-making to benefit all related stakeholders



**CORE PROJECT 3**

**GEO DETECTIVE**

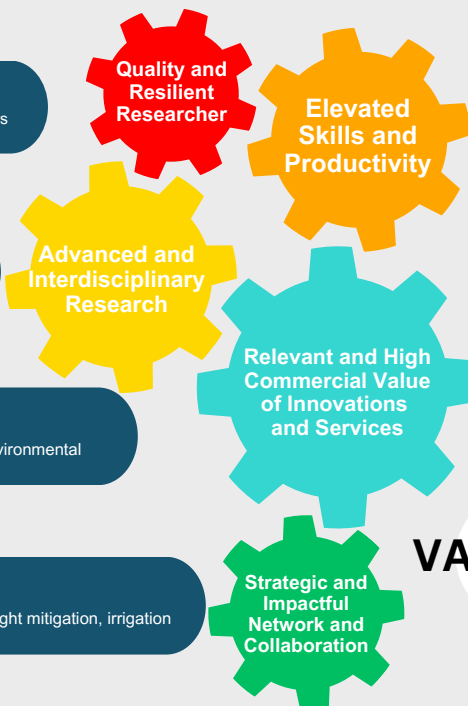
To invent a remotely operated vehicles to monitor and mitigate the environmental impacts at great depths and in harsh conditions



**CORE PROJECT 4**

**CLIMATE SHIELD**

To provide ready-to-use climate indicators and data for flood and drought mitigation, irrigation and carbon reduction customized to the Malaysian economy



### VISSION

To become a global reference center for research and innovation in the field of artificial intelligence and big data

### MISSION

To cultivate strong, ongoing relationships with stakeholders and parties of interest to empower communities, governments, and industries to achieve exceptional levels of productivity; and excellence through innovative research, talent development, and the application of artificial intelligence and big data technology across various domains.

### VALUES



# TNCPI One in A Million Innovation Award 2023



21 NOV 2023

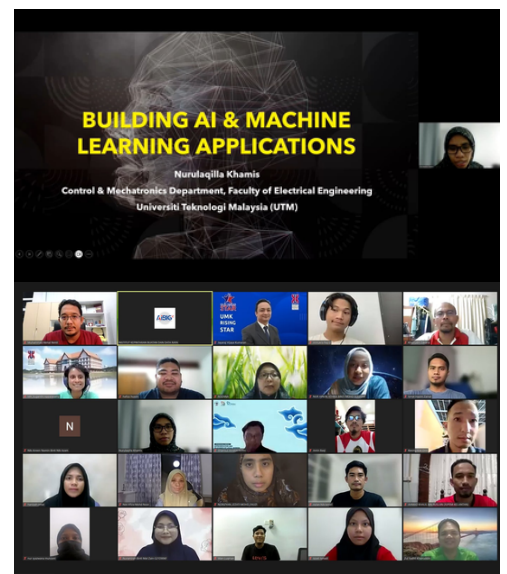
Kudos to the Office of Deputy Vice-Chancellor (Research & Innovation), TNCPI office for successfully executing the prestigious "TNCPI One in a Million Award" program. Applauding AIBIG for securing the coveted "One in a Million 'Innovation' Award," Ts. Dr. Mazlan Bin Mohamad from AIBIG was duly acknowledged with the esteemed 'Outstanding Innovation Award' (Gold Medal & Most Special). Additionally, Mr. Mohd Azanizam and Mrs. Suzana from AIBIG were honoured with the 'Sportsman' and 'Zero MC' awards, respectively. This remarkable achievement stands as a catalyst, inspiring other staff members to strive for excellence. May this recognition serve as a benchmark, encouraging continuous success within the organization. We hope that future programs akin to this initiative persist, recognizing the invaluable contributions of the TNCPI office staff and fostering stronger bonds among all members.



# Building AI and Machine Learning Applications

30 OCT - 2 NOV 2023

Institute for Artificial Intelligence and Big Data (AIBIG) successfully managed the short course "Building AI and Machine Learning Applications" that took place from October 30 to November 2, 2023, on Zoom. This course served as a remarkable opportunity to unlock the potential of AI and ML, with a diverse group of 36 participants who represented various backgrounds, including students, academicians, and professionals from multiple industries. Whether participants were looking to solve real-world problems, advance their careers, make data-driven decisions, foster innovation, or future-proof their skills, this program had them covered. We dispelled the misunderstandings surrounding these innovative technologies and offered practical instruction appropriate for both novices and experts. No tech wizardry was required; all they needed was the eagerness to learn and grow. We hope all the participants who joined us during this event found it to be a valuable experience, allowing them to level up their skills and make a meaningful impact in the world of AI and ML. We're grateful for all the participation that has joined our AIBIG Short Course: Building AI and Machine Learning Application, look forward to more opportunities like this in the future.





## UMK Trainer and Mentor Program: SK Othman Talib Robotics Club (2) for Preparation for the Robo Tracer Petrosains 2023 Robotics Competition at Politeknik Sultan Mizan, Dungun, Terengganu

18 SEPT 2023

Ts. Dr. Mazlan Mohamed is an AIBIG Fellow and Faculty of Data Science and Computing (FSDK) Senior Lecturer who has been invited as a coach and mentor for SK Othman Talib's robotics team (2) for the Petrosains RBTX Challenge East Zone 2023 competition: Robo Tracer Junior. This training program was held at SK Othman Talib (2), Pasir Mas. This collaboration is the result of the collaboration between SK Othman Talib Robotics Club (2) with FSDK & AIBIG, in particular, as well as UMK as a whole.

For the public's knowledge, SK Othman Talib's robotics team (2) has successfully met the requirements to participate in the Robo Tracer Petrosains RBTX Challenge East Zone 2023 Competition, which will be held on September 19-20, 2023. This preparatory program was also assisted by five industry training students. The SKOT robotics club (2) requires expertise in the field of 'coding' to prepare for the upcoming competition. We hope that the guidance and knowledge provided can assist the SKOT robotics team (2) in achieving success in this competition. AIBIG and FSDK sincerely wish great success for SK Othman Talib's robotics team (2) in the competition.



**Successful completion of**  
Microsoft "Code; Without Barriers"  
**Mentoring Session**  
February - April 2023

*I like this mentoring environment. The positivity I feel after this session constantly encourages me. It's very comfortable with you both (mentors). Even the other participants are very nice and they speak up as well so it feels like a community.*

**Mentors:** Marianne Leong (Universiti Malaysia Kelantan) & Zubair Khan (HCL Technologies)

**AIBIG Fellow, Ts. Dr. Marianne Christie Leong's Impactful Mentorship in Microsoft's 'Code; Without Barriers' Program**

FEB - APRIL 2023

Over the past three months (February to April) of this year, AIBIG Fellow, Ts. Dr. Marianne Christie Leong participated in Microsoft's 'Code; Without Barriers' program as a mentor. In this program, Dr. Marianne collaborated with her industry co-mentor based in India to mentor four women from across the Asia Pacific region. Their mentorship focused on thought analysis, skills inventory, creating unique career paths, time management, communication skills, and techniques for building resumes and LinkedIn profiles. As a result of their mentoring, one of the mentees successfully secured a job as a Data Analyst in the tech industry. Mentorship is a powerful tool for empowering others and supporting their growth. It is incredibly rewarding to witness the impact our guidance and support can have on one's career path.

16 MAY 2023

Congratulations to Ts. Dr. Marianne Christie Leong and her ASEAN team, representing Malaysia, Singapore, Vietnam, Thailand, and Myanmar, for securing a climate action seed grant from the US Mission to ASEAN: Young Southeast Asian Leaders Initiative (YSEALI). Together, they pitched their proposed project at the Wedu Women's Leadership Academy for Climate Resilience in early May in Bali, Indonesia. Through this project, they aim to provide technical digital skills training backed with climate education, with the mission to empower communities to leverage the power of data in mining insightful climate information for their respective local climate action projects.

**Congratulations on Securing a Climate Action Seed Grant for ASEAN Team through YSEALI**



**CONGRATULATIONS**  
Ts. Dr. Marianne Christie Leong  
and her ASEAN team  
**DATA FOR CHANGE**  
for winning climate action seed grant  
from  
Young Southeast Asian Leaders Initiative (YSEALI)

**#WomenForE4**  
Amplifying Women's Leadership for Climate Resilience

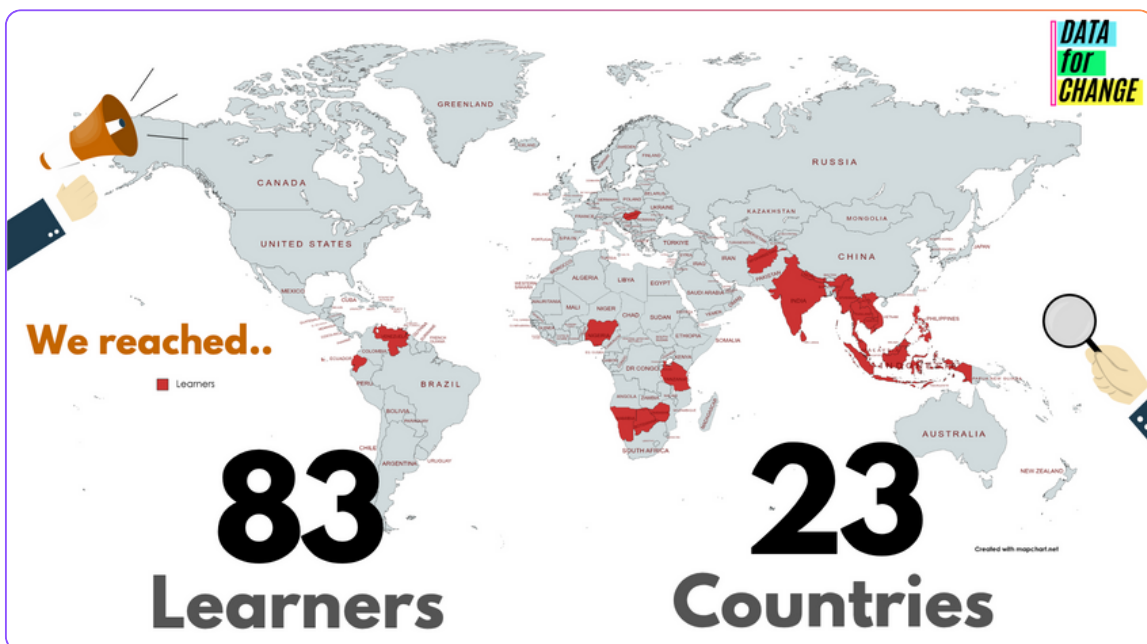
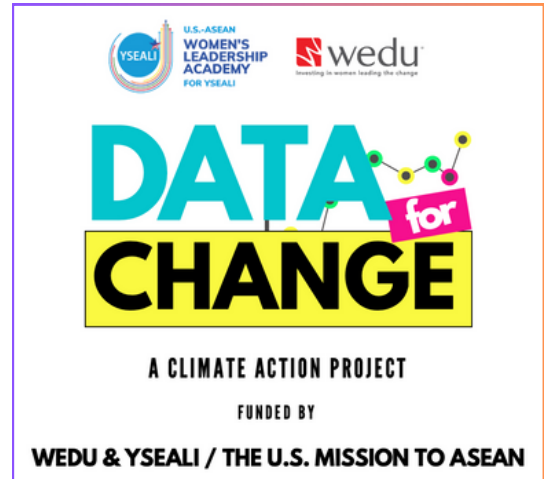
Usang Karnit (Thailand), Su Su Htet (Myanmar), Shaune Chow (Singapore), Nguyen Thi Thanh An (Vietnam), Marianne Leong (Malaysia)

## RESEARCH & DEVELOPMENT (R&D)

Congratulations once again to Ts. Dr. Marianne Christie Leong and her dedicated team for the outstanding completion of their 3-month Climate Action Project in August 2023!

Their "Data for Change" project, designed to empower ASEAN youths with essential technical skills for climate data analysis, surpassed all expectations. Originally targeting 11 countries and 30 learners, the project's impact went far beyond. They managed to reach an impressive 23 countries and engaged with 83 learners globally, marking an extraordinary achievement.

The feedback they received from the participants is a testament to the broad positive influence their project has had on a global scale. We commend their dedication to advancing climate education and applaud their exceptional results.



c. Please share specific aspects of the course content that you found most helpful or any areas that need improvement:

Your Answer:

I am a beginner in Data Analysis and this course help me deeply understand the concept become familiar to Posit and R studio.

**Precipitation Patterns**

- The trend in this decomposition graph shows that precipitation was dramatically increasing from 1990 to 2000, stayed the same until 2010 and increased to the maximum till the end of the period.
- Subjecting to the seasonal patterns, the rainfall usually took place at the beginning of the year. Particularly, precipitation was the highest during spring and declined in summer, autumn, and winter.

**Key Findings**

Overall, both of the temperature and precipitation rate of Bangkok become higher than the last decade. The temperature are highest in summer seasons and precipitation is the most frequent in spring season. This means that Thailand is warmer than before.

According to the Findings from this project, I think that we need to find solutions and perform and practice actions to tackle the Global Warming issue. We can take actions by changing small tasks such as Driving less , Recycling, Avoiding products with a lot of packaging, Avoiding Plastics, Planting trees and Turning off electronic devices when unneeded.

In Conclusion, Data Analysis plays a key role in predicting and analysing the climate change of our planet and it can help make our environment a better place.

**What our participants learned:**

**Yel**  
Sep 9, 2023

The Location of my Climate Data Analysis is Bangkok, Thailand and the Analysis Period of my project is from 1990 to 2020.

**Temperature Trends**

- By looking at the trend, the maximum temperature was continuously decreasing from 1990 to 2000, stayed in the same temperature until 2005 and dramatically increased to the end of the period.
- Regarding the seasonal pattern, it is clearly shown that the temperature in the first 6 months climbed to reach the highest (summer season) and declined in the last 6 months (winter season).

## RESEARCH & DEVELOPMENT (R&D)

Congratulations to Ts. Dr. Marianne Leong for being featured on Asian Scientist magazine for her insights on the future of High-Performance Computing (HPC) in ASEAN. Her consecutive awards as the 'Best Student' at the EU-ASEAN HPC School in 2021 and 2022 are a testament to her dedication and expertise in the field. Well done!

The EU-ASEAN HPC School, organised by the Enhanced Regional EU-ASEAN Dialogue Instrument (E-READI), is a collaborative initiative aimed at promoting access to leading HPC facilities worldwide through international collaboration as well as ASEAN talent development.

As a direct outcome of this training and her engagement with ASEAN delegates, she has extended her expertise to encompass Research Infrastructures (RIs). Going forward, she hopes for open and integrated RIs to be established for ASEAN to further enhance the capability of ASEAN research, following the footsteps of the European Union.

### AIBIG Fellow, Ts. Dr. Marianne Christie Leong's featured on Asian Scientist Magazine

#### ASIANSCIENTIST

NEWS IN THE LAB HEALTH TECHNOLOGY PHARMA ACADEMIA FEATURES VIDEO NEWS BY COUNTRY

March 7, 2023 • [Print](#) • By [Marinel Mamac](#)

### Fostering The Next Generation Of HPC Leaders

<https://www.asianscientist.com/2023/03/print/fostering-the-next-generation-of-hpc-leaders/>



*“Dr. Marianne Christie Leong, an atmospheric scientist who received the Best Student Award in the 2021 EU-ASEAN HPC School, agrees. **“My hope is for an open-source or shared HPC facility to be available in the ASEAN region,”** she shared in an interview with **Supercomputing Asia**. **“These facilities are expensive, and not all countries or organizations can afford it.”** With this shared HPC environment, Dr. Marianne hopes to pool regional expertise to tackle big issues like climate change.”*

*“Leong, for her part, is currently using HPC to study atmospheric processes in Peninsular Malaysia. She was invited again to participate in the second EU-ASEAN HPC School, this time in person. Leong described the experience as “beyond awe-inspiring” and hopes to use her research to contribute to climate-resilient development.”*

## RESEARCH & DEVELOPMENT (R&D)



### AIBIG Delegation Explores Collaboration Opportunities with Universiti Teknologi Malaysia (UTM), Johor

19 FEB 2023

The delegation from Institute for Artificial Intelligence and Big Data (AIBIG), led by Dr. Muhammad Akmal Remli, Director of AIBIG, visited the Faculty of Computing at Universiti Teknologi Malaysia (UTM) to explore potential collaborations with researchers. The delegation was accompanied by AIBIG Associate Fellows, Ts. Dr. Nooraziah Ahmad and Ts. Dr. Mazlan Mohamed. The discussions centered around potential collaborations in the areas of AI, Big Data, IoT, Smart Manufacturing, Product Design, and more.

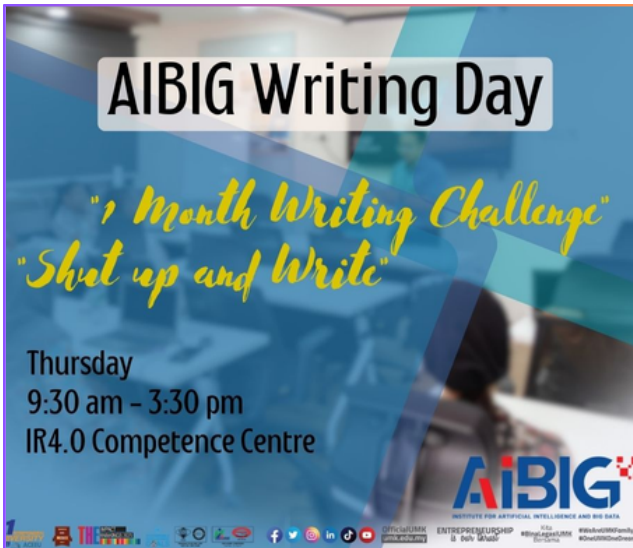


### AI Spectrum Bulletin Workshop

30 OCT - 1 NOV 2023

AI Spectrum has been ongoing for two months now. AIBIG recently organised a workshop called "Review and Final Production of AI Spectrum Bulletin Workshop" from 30th to 1st November 2023. This workshop spanned three days and brought together internship students, AIBIG staff, and lecturers to review and finalise the AI Spectrum bulletin. This program aimed to ensure the quality and accuracy of the bulletin.





**AIBIG Writing Day**  
*"1 Month Writing Challenge"*  
*"Shot up and Write"*

Thursday  
9:30 am - 3:30 pm  
IR4.0 Competence Centre

**AIBIG**  
INSTITUTE FOR ARTIFICIAL INTELLIGENCE AND BIG DATA

ENTREPRENEURSHIP & INNOVATION

UMK

#AIBIGWritingDay

#ShotUpAndWrite

### AIBIG Writing Day

THURSDAY

Writing is an essential part of academic work. The creative and artistic process of writing demands unwavering commitment and dedication to bring ideas to life. At AIBIG, a centre of excellence, we're equipped with state-of-the-art facilities to facilitate this undertaking. We're excited to announce that every Thursday, we've dedicated our time to tackle writing challenges and creating high-quality manuscripts in a serene and conducive environment. You can join us at the IR4.0 Competence Center, located at Universiti Malaysia Kelantan City Campus, starting at 9:30 AM. If you have any inquiries, please feel free to contact us at [dauda.g@umk.edu.my](mailto:dauda.g@umk.edu.my)



## Interdisciplinary Postgraduate Opportunity in Climate, AI & Big Data

23 AUG 2023

Positions available:

- Master or PhD by Research - 1.5 to 3 years

Requirements:

- Malaysian citizenship
- Bachelor's or Master's degree in climate, environmental and sustainability science, computer science, data science or artificial intelligence.
- Strong command of written and verbal English.
- Experience in Machine Learning, Deep Learning, Python, or Matlab will be advantageous.
- Able to travel between Kelantan and Perak with the ability to communicate with local communities there.
- Detail-oriented, highly motivated, proactive, and passionate about research, with the ability and willingness to work independently.

Benefits:

- Monthly stipend provided - 3 years for Ph.D. and 2 years for Master's
- Engagement in collaborative projects with local and international peers
- Candidates will be enrolled under the Faculty of Earth Science but based at the Institute for Artificial Intelligence and Big Data (AIBIG), UMK City Campus, Kota Bharu, Kelantan.



**AIBIG**  
INSTITUTE FOR ARTIFICIAL INTELLIGENCE AND BIG DATA

**INTERDISCIPLINARY POSTGRADUATE OPPORTUNITIES**

CLIMATE AI DATA SCIENCE

**2-YEAR MASTERS BY RESEARCH**

**RESEARCH AREAS**

- TROPICAL WATER RESOURCE MANAGEMENT
- LAND-ATMOSPHERE INTERACTIONS
- CLIMATOLOGY STUDIES

Funded by the European Union

**REQUIREMENTS**

- Malaysian citizen
- Bachelor's degree in climate, environmental & sustainability science, computer science, data science, or artificial intelligence.
- Strong command of written & verbal English.
- Experience in Machine Learning, Deep Learning, Python or Fortran will be advantageous.
- Detail-oriented, highly motivated, proactive, passionate about research with cross-cultural communication skills and ability to work independently.

SEND YOUR CV BY **15 Sept 2023** VIA EMAIL TO [marianne@umk.edu.my](mailto:marianne@umk.edu.my)

Candidates will be registered under the Faculty of Earth Science but be based at the Institute for Artificial Intelligence & Big Data, UMK City Campus, Pengkalan Chepa, Kota Bharu, Kelantan.

This project does not and shall not discriminate on the basis of race, colour, religion, gender expression, age, national origin (ancestry), disability, marital status, sexual orientation, or military status, in its hiring process. Young women and indigenous people are highly encouraged to apply for the position inclusivity actions.

## AIBIG Fellow at FSDK



4 SEPT 2023

Happy working to Ts. Dr. Mazlan, an AIBIG Associate Fellow who has just reported to the Faculty of Data Science & Computing (FSDK), UMK.



## Exciting PhD Postgraduate Opportunity in Artificial Intelligence and Stock Market!



**AIBIG FSDK**

**POSTGRADUATE OPPORTUNITY IN ARTIFICIAL INTELLIGENCE**  
(Full Time PhD by Research)

**RESEARCH AREAS:**

- ▶ Artificial Intelligence
- ▶ Data Analytics
- ▶ Stock Market / Equity

**REQUIREMENTS:**

- ▶ Master in Computer Science / Computing / Data Analytics / Data Science
- ▶ Good in Programming and Writing
- ▶ Enrollment October 2023 intake
- ▶ Knowledge in Deep Learning, Stock Market or Equity will advantageous
- ▶ Local Malaysian

**BENEFITS:**

- ▶ Monthly stipend provided
- ▶ Research will be conducted at Institute For Artificial Intelligence and Big Data (AIBIG), UMK Kampus Kota, Kota Bharu Kelantan

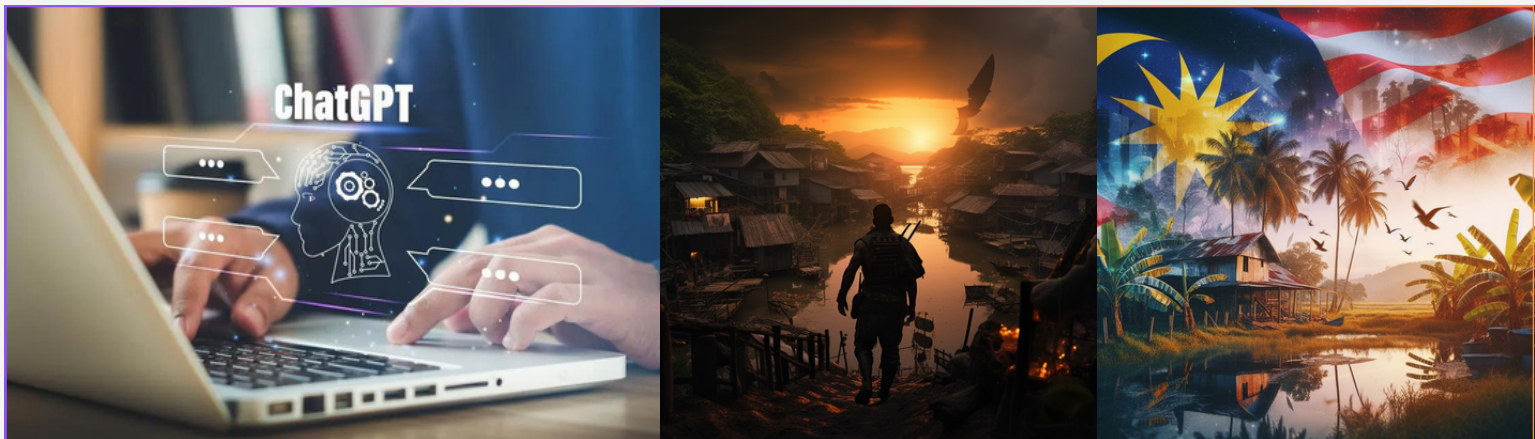
**APPLY NOW!**

**SENT YOUR CV BEFORE 12 SEPTEMBER 2023 TO:**  
Dr. Muhammad Akmal Bin Remli  
[akmal@umk.edu.my](mailto:akmal@umk.edu.my)  
Director  
Institute For Artificial Intelligence and Big Data (AIBIG)

5 SEPT 2023

If you're passionate about Artificial Intelligence and intrigued by the dynamic world of stock market trading, this PhD Postgraduate opportunity provides a unique path to pursue your interests. By choosing this opportunity, you'll have the chance to broaden your horizons and deepen your expertise in AI, exploring its fascinating applications in the context of the stock market. This journey not only allows you to work towards your doctorate but also provides invaluable experience in gaining insights into trading and equity markets. In doing so, you'll be at the forefront of both finance and technology, contributing to cutting-edge research that has the potential to shape the future of investment strategies. Don't miss this remarkable chance – seize the opportunity to advance your career while exploring the exciting intersection of AI and the stock market.

# Generative AI (GenAI) and Large Language Model (LLM)



30 NOV 2023

Generative Artificial Intelligence (AI), or GenAI, has become a hot topic in today's tech world. But what's GenAI all about? Let's break it down in simple terms. At its core, Generative AI is like having a smart and creative robot in your computer. It can create new things on its own, like writing stories, making art, or even chatting like a real person. That's why people find it so fascinating. Take ChatGPT, for instance. It's an example of a GenAI application. It's like talking to a clever computer that understands what you say and talks back. It can answer questions, chat about different topics, and even tell jokes.

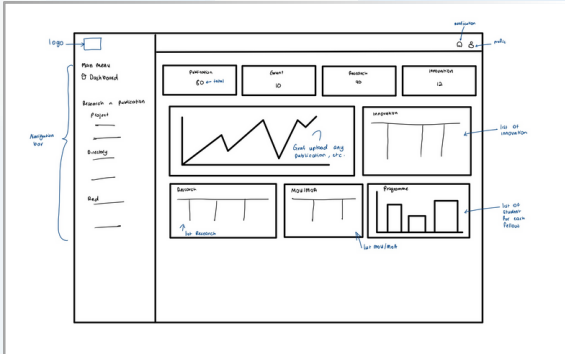
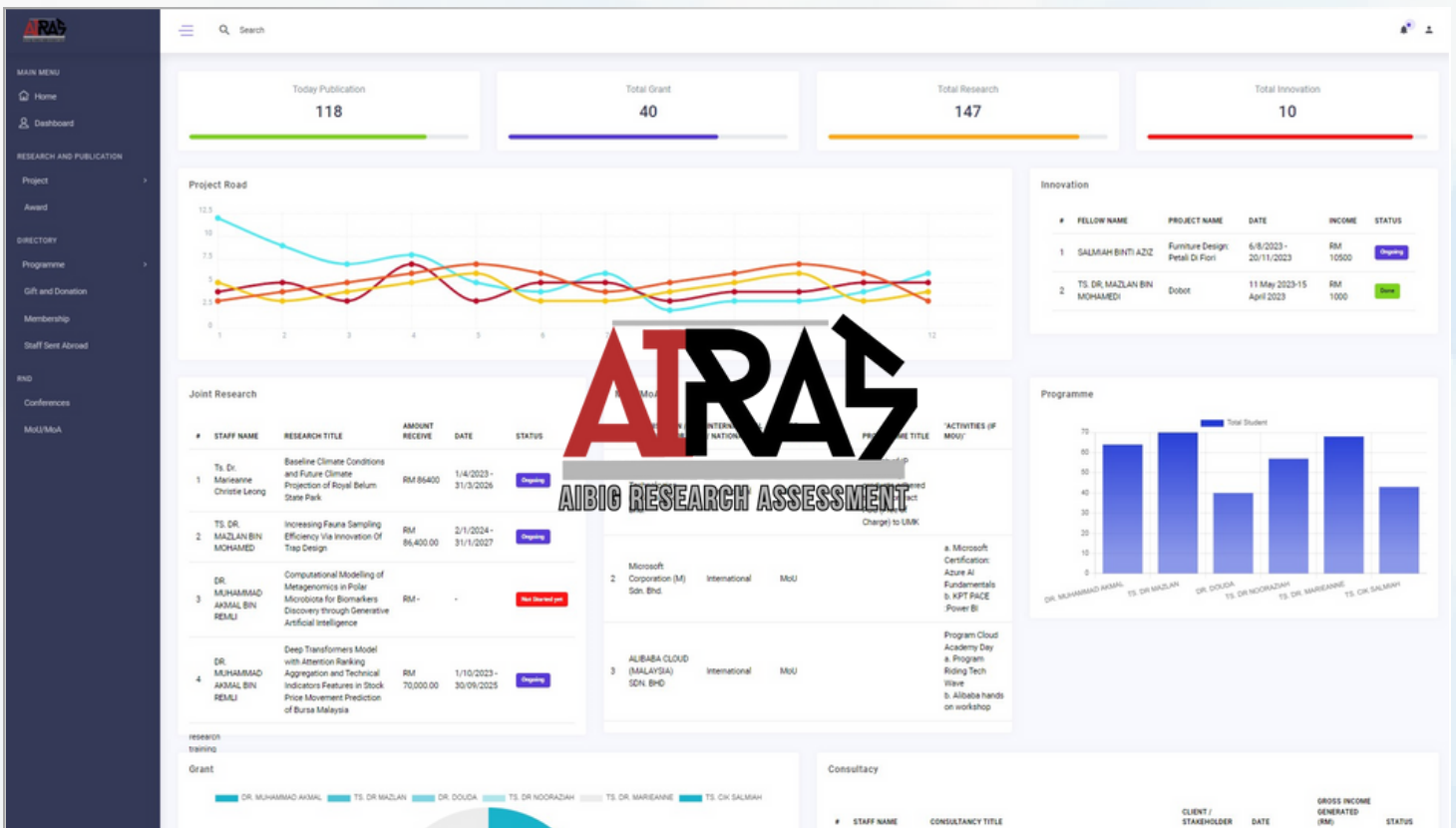
But how does this happen? It's thanks to something called Large Language Models (LLMs). These are super smart AI systems that learn from tons of information. They help GenAI understand how language works so it can talk and create things like ours. Now, why do businesses care so much about using GenAI? Well, it's a game-changer. Imagine if a store had a super helpful robot that could answer all your questions, guide you to what you need, and even suggest things you might like. That's GenAI at work, making things faster and better for customers. Using GenAI isn't just about being cool—it's about businesses being more efficient and giving better service. It can help them understand customers better, create personalized experiences, and even develop new ideas to grow.

Instead of ChatGPT, numerous GenAI applications have been developed, and the count continues to increase. These applications range across various tasks, such as writing, research, arts, and more. Midjourney is among the popular GenAI tools used to create realistic images by simply inputting a prompt. In a nutshell, Generative AI and Large Language Models are like having a super smart friend who can do all sorts of amazing things on the computer. They're making tech smarter and businesses better at what they do!

Author: Muhammad Akmal Remli, PhD

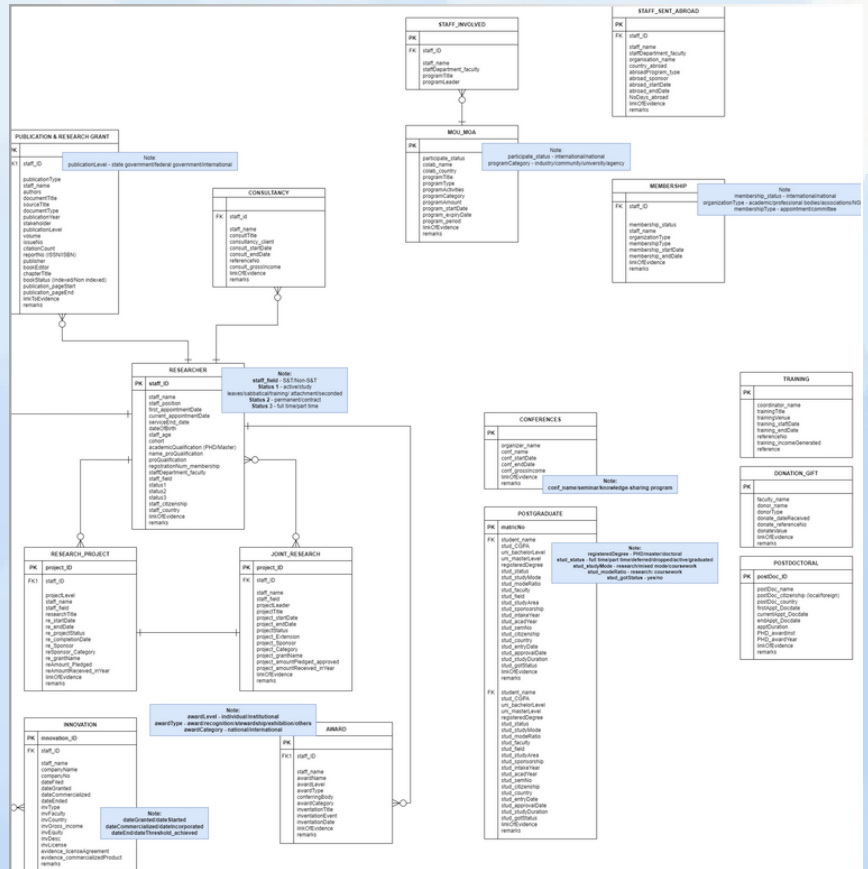


# ➤➤➤ AIBIG RESEARCH ASSESSMENT SYSTEM (AIRAS)



13 OCT 2023

The AIBIG Research Assessment System, or AIRAS for short, was created to streamline workflow procedures and enhance data management within AIBIG. The system is made to manage several different types of data, such as papers, grants, training, consulting, and more. On October 15, 2023, AIRAS development was underway, and it was finished in just over a month. This project used an agile methodology with incremental improvements, including intern students as database designers and system developers. MySQL is used as the database, and the Django framework is used in the design and development of the system. Its main goal is to streamline AIBIG's data management processes using data gathered from several sources, including social media and Scopus.





## AI-Based Recognition Board'

10 SEPT 2022

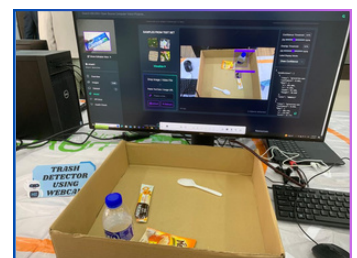
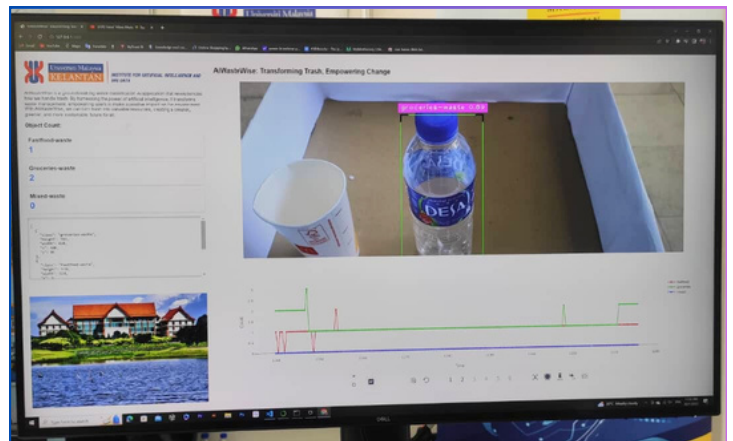
'AI-Based Recognition Board' was developed by AIBIG for use during the International Conference and Exposition on Inventions by Institutions of Higher Learning 2022 (PECIPTA'22) on November 3, 2022. During this event, the face recognition system is employed as part of the launch gimmick. This board comprises a set of Insta360 cameras, a computer screen, and a central processing unit (CPU). The board functions when the event's officiator directs their face towards the screen. Automatically, the pre-programmed recognition system identifies the faces of individuals captured by the provided camera. The screen display will showcase the face recognition process before revealing the identity. Future prospects for this product in the realm of entrepreneurship lie in its potential applications within the context of Industry 4.0, encompassing areas such as advanced security solutions, innovative event attendee management, and cutting-edge corporate security surveillance systems.



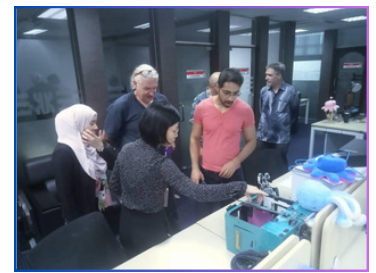
## AI Waste Wise [Transforming Trash Empowering Change]

13 MARCH 2023

Kelantan, Malaysia, grapples with waste management challenges like inefficient collection, inadequate disposal facilities, and limited recycling programs, leading to pollution, health risks, and resource wastage. Traditional, manual waste sorting and collection methods are time-consuming and error-prone. Rapid population growth and urbanization exacerbate waste generation, straining existing infrastructure. Ineffective waste segregation further complicates recycling and disposal. The solution lies in harnessing AI Waste Wise technology to revolutionize waste management in Kelantan. AI Waste Wise can optimize processes, improve efficiency, enhance waste segregation, and provide a systematic approach to waste management, ultimately mitigating environmental issues and promoting sustainability.



# Potential Collaboration Meeting Between UMK and Leiden University



19 OCT 2023

UMK and Leiden University joined forces to explore fresh areas of knowledge. During our recent meeting, academics convened to explore potential partnerships and exchange ideas. This collaboration involves UMK's AIBIG and the Faculty of Data Science and Computing (FSDK) partnering with Leiden University, prioritizing knowledge exchange. Its main goal is to nurture partnerships and facilitate the sharing of expertise. The focus remains on mutual learning, growth, and embracing a global perspective by leveraging diverse cultural and academic backgrounds. This partnership seeks to broaden horizons, encouraging collaborative learning and understanding across boundaries. The event occurred at the IR 4.0 Competence Centre on the UMK City Campus. The delegation from Leiden University was warmly welcomed by key figures, including Dr. Hasyiya Karimah Adli, who serves as the Dean of the FSDK. In addition to these individuals, representatives from various academic departments, including FSDK, AIBIG, FTKW, and FBI, were also in attendance at the event.



Prominent members of the delegation featured Prof. Bart Barendregt, who occupies the esteemed role of Professor and UNESCO Chair of Digital Diversity at the Institute of Cultural Anthropology and Development Sociology (CADS). Dr. Reza Shaker Ardekani, holding a Ph.D. in Cultural Geography from the University of Groningen, was another integral part of the delegation. Furthermore, Mr. Low Weiyang, a Ph.D. candidate specializing in Cultural Anthropology at Leiden University, was among the attendees. Throughout the meeting, various topics were discussed and shared, facilitating productive dialogue and knowledge exchange among the participants.



## Supervision Evaluation Visit from Fatoni Thailand University (FTU)



21 MAY 2023

Institute for Artificial Intelligence and Big Data (AIBIG) at UMK had the privilege of hosting a Supervision Evaluation Visit from Fatoni Thailand University (FTU). We extend our heartfelt gratitude to the FTU delegates for their visit, and it was truly an honour to welcome them. We eagerly anticipate the opportunity to host them again in the near future, fostering further collaboration and knowledge exchange.

## Cooperative Visit of The Institute for Artificial Intelligence and Big Data (AIBIG) to Kestrl Malaysia



8 MARCH 2023

A collaborative visit between AIBIG and Kestrl was held on 8 March 2023. Kestrl is one of the startup companies based in the UK and Malaysia involved in the Digital and Fintech sectors. The results of the discussion involve several collaborations that will be implemented to give a positive impact on all parties.

## Visit Dr. Aznan Ezraie Ariffin, Chief Strategy Officer, TNBR to AIBIG

9 MAY 2023

On May 9, 2023, Dr. Aznan Ezraie bin Ariffin, Chief Strategy Officer of TNBR, paid a special visit to the Institute for Artificial Intelligence and Big Data (AIBIG). The purpose of this visit was to explore the potential collaborations that could be harnessed at AIBIG, especially in the fields of data analytics, artificial intelligence, digital technology, and renewable energy.

Dr. Aznan Ezraie had the opportunity to tour the IR 4.0 Competence Center (CC) and witness firsthand some of the successful projects undertaken by AIBIG. It's worth noting that AIBIG had previously collaborated with TNBR to enhance knowledge related to Artificial Intelligence and Data Analytics in the energy sector. The visit and shared insights from Dr. Aznan Ezraie are highly appreciated, and it is hoped that this visit will pave the way for new opportunities further to explore the field of AI in the energy sector.



## Lexus 2023 Junior Program Closing Ceremony

28 FEB 2023

It is indeed commendable to note that a collaborative effort led by AIBIG, involving a team of trainers and researchers, has successfully translated and shared their expertise through the Junior Leadership Executive Course for Surveyors and Geospatialists, or Junior LEXUS, with the Malaysia Department of Survey and Mapping Malaysia (JUPEM). Over several months, more than 40 dedicated surveyors and geospatialists participated in this program, which began in February and concluded in September. Their unwavering commitment to advancing their skills and knowledge in this field deserves a round of applause. The ultimate objective of this initiative, which aims to equip potential leaders in surveying and geospatialism with cutting-edge technology and expertise in AI and Data Analytics, holds great promise in empowering these professionals to drive organisational excellence and innovation in their respective domains.



## Director of AIBIG and FSDK Deputy Dean Visit Kelantan State Survey and Mapping Department for AI Discussion



18 MAY 2023

The visit of the Director of AIBIG, Dr. Muhammad Akmal Remli and the Deputy Dean of the Faculty of Data and Computer Science (FSDK), Ts. Dr. Hadhram Ab. Ghani to the Kelantan State Department of Surveying and Mapping for a discussion of several initiatives to use Artificial Intelligence (AI) technology in surveying and mapping work.

## Empowering Digital Transformation Together

15 AUG 2023

Institute for Artificial Intelligence and Big Data (AIBIG) visited Kelantan ICT Gateway Sdn. Bhd. As already known, KIGSB is a centre under the auspices of the State Government that plays an important role in driving the Information and Communication Technology (ICT) industry in the State of Kelantan. This visit is not only a courtesy but also an important step in strengthening the close cooperation between AIBIG and KIGSB to create a more excellent technology ecosystem.

Several main goals have been proposed to maintain the momentum of technology growth in Kelantan, among which AIBIG openly wants to share expertise with KIGSB to advance the ICT and digital sector in Kelantan. Through various trainings and programs, AIBIG is determined to cultivate local expertise in deep data analysis, giving the state competitiveness in the era of Industrial Revolution 4.0. In addition, Dr. Muhammad Akmal Remli, Director of AIBIG, invited KIGSB to assist in the development of learning modules in Data Science, digital technology, and AI, including assisting in drafting a unique Blueprint of AI and Big Data specifically for Kelantan, including applications in the important sectors that have been discussed. With this synergy, AIBIG and KIGSB together grasp excellent opportunities in the field of Data Science, guiding the state toward continuous technological excellence.

KIGSB has shown great interest in collaborating with AIBIG. In addition to suggesting that this cooperation be continued through activities and programs arranged in the future, KIGSB also expressed the intention to conduct a return visit, which is hoped to enable a more in-depth discussion on the aspects of this cooperation. We thank our dedicated host, General Manager Mr. Mohd Roslan Mohd Zain, and Mrs. Farizan Jaafar, Business Development and Training Executive, for the warm welcome and meaningful cooperation.



## Fostering Collaboration Between Academia and Industry: A Productive Meeting with Tok Bali Supply Base Group Sdn. Bhd (TBSB)

9 OCT 2023

We are delighted to welcome a delegation from Tok Bali Supply Base Group Sdn. Bhd (TBSB) led by General Manager Nur Hasmin Kamarollzaman. Also present in this visit are Nashrulhazran Nasir, Anita Ibrahim @ Zakaria, and Nik Aireen Yasmin Nik Azam. Our highly productive initial discussion has sparked the potential for exciting future collaborations between academia and industry! Our conversation has been truly inspiring, igniting opportunities for cooperation in research supply base, analytics, IT, artificial intelligence, and much more. Together, we are shaping the future of academic-industry partnerships!



## Enhancing AI, Data Analytics, and IoT Collaboration: AIBIG and Datastar Partnership

9 JUL 2023

We extend our gratitude to Mr. Muhammad Zharif, CEO of Datastar, for his visit to the Institute for Artificial Intelligence and Big Data (AIBIG). He was warmly welcomed by AIBIG's Director, Dr. Muhammad Akmal Remli, and accompanied by Ts. Dr. Mazlan Mohamed and Ts. Dr. Marianne Christie Leong. The discussions, spanning approximately one hour, primarily revolved around fostering collaboration between AIBIG and Datastar in the domains of Artificial Intelligence (AI), data analytics, and the Internet of Things (IoT). This partnership aims to deliver the latest advancements in AI, data analytics, and IoT technologies, focusing on creating a significant impact on industries and society. It aligns with AIBIG's mission of achieving exceptional productivity and performance through innovative research, talent development, and the use of AI and big data technologies across various fields. In conclusion, the visit to AIBIG marks a significant step in strengthening cooperation between both organisations in the areas of AI, Data Analytics, and IoT. With the combination of expertise and resources, we anticipate that cutting-edge innovations can be realised, providing substantial benefits to industries and society at large.



## AIBIG's Visit to the State Secretariat of Kelantan's Information Technology Division

11 JUL 2023

The visit of the Institute for Artificial Intelligence and Big Data (AIBIG) to the Information Technology Management Division of the State Secretary's Office of Kelantan on July 11, 2023, was a significant step in fostering collaboration between academia and the government. AIBIG, led by Dr. Muhammad Akmal Remli, discussed AI and Big Data concepts and recent advancements with enthusiasm. They also proposed ways to strengthen the division's capabilities and performance. Training programs were presented to support the division's needs, aiming to enhance its effectiveness. The visit laid a crucial foundation for knowledge sharing and collaboration between AIBIG and the State Secretary's Office, Kelantan, with both parties committed to advancing the fields of AI and Big Data in the state.



## >>> AIBIG EXPERT REFERRALS

AIBIG Expert Referrals is an initiative aimed at fostering collaboration and gathering diverse expertise across disciplines. They are appointed to strengthen AIBIG in research development, training, networking, publications, and conferences.



**Dr. Afnizanfaizal Abdullah**  
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**Dr. Nurulaqilla Khamis**  
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**Prof. Dr. Mohd Shahrizal Sunar**  
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**Prof. Ir. Ts. Dr. Ahmad 'Athif Mohd Faudzi**  
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**PM. Dr. Mohd Shahizan Othman**  
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**Ts. Wan Azlee Wan Abdullah**  
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**Dr. Hana Yazmeen Hapiz**  
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Competition  
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**Ts. Dr. Zamri Osman**  
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**Dr. Alfonso González Briones**  
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**Ts. Dr. Azlee Zabidi**  
🎓 IoT & Industrial IoT (IIOT)  
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## Relax in Bukit Keluang, Terengganu

20 MAY 2023

The Bukit Keluang climbing activity in Besut, Terengganu, involving fellow Dr. Marianne, AIBIG staff, and practical students, occurred on 20 May 2023. The hill climb started at 9:00 a.m. after all the staff gathered at the foot of Bukit Keluang. The duration of climbing Bukit Keluang takes 30 minutes to reach the top of the hill. All the team have managed to get to the top of the hill and return to the foot of the hill safely. Afterwards, the staff and students had the opportunity to picnic at Bukit Keluang Beach. BBQ activities are also held to liven up the atmosphere. Such activities are held to strengthen the relationship between staff and students further. It is hoped that such activities can be held again in the future. Thank you to all the staff and practical students of AIBIG who are willing to spend time to make the activity a success.



## AIBIG-HEART - Harnessing Algorithms for Environmental & Social Transformation



7 SEPT 2023

September 7, 2023. We met at Pantai Kundur, Kota Bharu, Kelantan for 'AIBIG HEART' (Harnessing Algorithms for Environmental & Social Transformation). This community service initiative, inspired by the core values of commitment, awareness, and teamwork from the 'AIBIG SPARK' workshop, involved AIBIG staff, fellows, and our dedicated intern students. Our mission is to raise environmental awareness and combat beach pollution. Together, we didn't just clean up. We shaped a sustainable future. Thank you to everyone who joined us!

## SPORTS, RECREATION & CSR



### UMK Family Day 2023: Celebrating Achievements and Unity at UMK Jeli

22 - 23 SEPT 2023

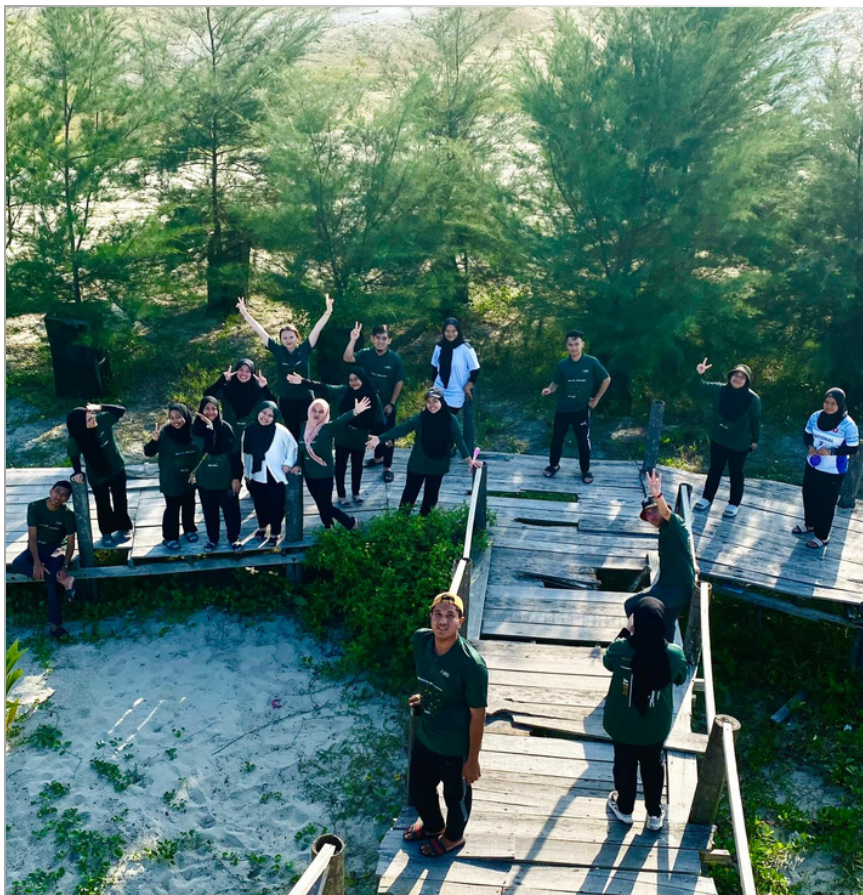
We share the exhilarating experience of UMK Family Day 2023 at UMK Jeli on September 22nd and 23rd with immense joy and pride. AIBIG took on the incredible task of building a replica of the Sultan Ismail Petra City Gate, the Rehal Tower, a feat that required unwavering dedication and hard work from our team. The event concluded in fierce competitions between three contingents, Bachok Campus, Kota Campus, and Jeli Campus, affectionately known as Red Jelly. Representing the Jeli Campus, including all TNCPi members, was a source of great pride for us. We created unforgettable memories during this event, earning awards such as the Best Choir Award, Best Talent Night Performance, Tug of War Champion, and victories in various sports. Our heartfelt gratitude goes out to everyone who supported and cheered us on, and congratulations to everyone who participated in other contingents and contributed to this resounding success. Today marks the beginning of more accomplishments together in the future, and we can't wait to see you at the next UMK Family Day!

## Team Building at Pantai Melawi, Bachok, Kelantan



4 OCT 2023

On October 4th, 2023, AIBIG organised a vibrant team-building program at Pantai Melawi in Bachok, Kelantan, bringing together staff, fellows, and interns to foster solid relationships and camaraderie. The day was packed with exciting activities, such as a delicious BBQ session, exciting games that added a fun and competitive element, and plenty of memorable photo opportunities to capture the day's spirit. It was encouraging to see FSDK interns eagerly joining us, adding to the dynamic mix of participants and enhancing the overall experience. Such initiatives not only strengthen ties but also foster a sense of unity and collaboration, both of which will undoubtedly benefit AIBIG's future endeavours.



# CSR Sustainable Nature-Centric Design Programme



29 OCT 2023

Studio 1's students, Bachelor of Interior Architecture, Department of Interior Architecture, Faculty of Architecture and Ekistics (FSE), and lecturers together successfully organised a community program at Madrasah Al Insaniyyah Wa Tahfizul Quran, Pantai Melawi with the participation of 27 tahfiz students, 25 Studio 1 students, tahfiz teachers, and lecturers on October 29, 2023. The program's theme was "CSR Sustainable Nature-Centric Design Programme. Breathe, Learn, Thrive" means creating classrooms with nature-inspired elements to support student well-being. These classrooms use greenery, natural light, and eco-friendly features to enhance air quality and comfort. The goal is to provide a space where students can excel academically and emotionally, leading to better focus and a stronger connection to nature.

These green classrooms reflect a dedication to sustainable design, contributing to healthier, happier students. This corporate social responsibility (CSR) project has been managed and overseen by Ts. Salmiah Aziz, the AIBIG Fellow (interior architecture lecturer). The Dean of FSE, Associate Prof. Dr. Mohammad Rusdi Mohd Nasir officiated the CSR program. She wanted to express her heartfelt thanks to the faculty for their sponsorship and to all generous contributors who supported and contributed to making this CSR program a reality and to everyone, especially the FSE management and the Dean of FSE, and all those involved in the success of this CSR program.





**Department of Interior Architecture, Faculty of Architecture & Ekistics (FSE)**



**RAFEAH FLORIST**

## CSR SUSTAINABLE NATURE-CENTRIC DESIGN PROGRAM

Program CSR Rekabentuk Mampun Berasaskan Alam

**Speakers**



"Alam Semulajadi & Kesejahteraan Manusia"  
Dr. Nor Diyana Mustapa



"Senibina Hijau"  
Ts. Salmiah Aziz

**Moderator**  
Ustaz Muhammad Mu'az Hasbullah

**29 OCT 2023 SUNDAY**  
2.30PM - 6.00PM

**MADRASAH AL-INSANIYYAH WA TAHFIZUL QURAN, KG. PANTAI MELAWI, 16310 BACHOK, KELANTAN**

Time	Session
2.30 pm	The arrival of FSE students and staff, & the program begins
2.40 pm	Introduction of Islamic School by Ustaz Muhammad Mu'az Hasbullah (Mudir Madrasah Al-Insaniyyah Wa Tahfizul Quran) & Qasidah by Tahfiz students
3.20 pm	The welcoming and inauguration words for the CSR Program by the Dean of the Faculty of Architecture and Ekistics (FSE), UMK Associate Professor Dr. Mohammad Rusdi bin Mohd Nasir
3.30 pm	Lecture: Alam Semulajadi & Kesejahteraan Manusia by Dr. Nor Diyana Mustapa & Senibina Hijau by Ts. Salmiah Aziz
4.00 pm	Asar
4.30 pm	Hands-on Workshop on Placing Indoor Plants in the Classroom
5.00 pm	Outdoor Activity & Tea-time
6.00 pm	Program end

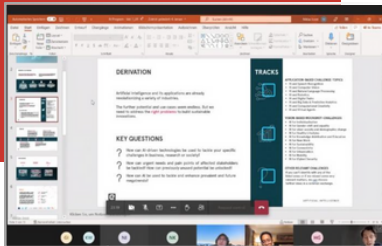
**ADOPT A TREE**  
to us, we will plant for you

**Breathe, Learn, Thrive: Green Classrooms Promote Student Well-being**  
"Breathe, Learn, Thrive" incorporates nature-inspired classroom features such as greenery and natural light to improve student well-being, elevate academic and emotional achievements, and nurture a connection to nature.

## Discussion on Collaboration with German Startup Kaiserstraße Frankfurt on AI Programme

12 JAN 2022

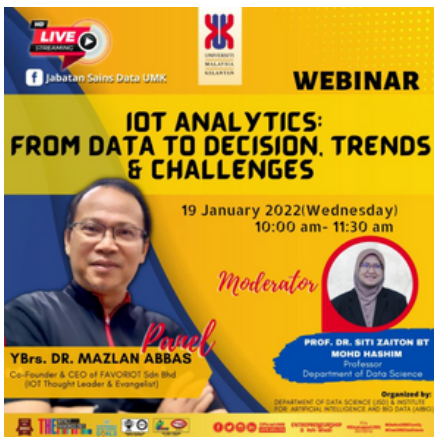
AIBIG has held cooperation discussions with German Startup Kaiserstraße Frankfurt, which aims to see cooperation opportunities in research, Artificial Intelligence (AI), IR4.0, and related fields.



## Research and Benchmarking Collaboration Visit to Telekom Research & Development Sdn Bhd, Faculty of Science and Technology, Universiti Sains Islam Malaysia (USIM) and Power and Energy Research Group, Universiti Kebangsaan Malaysia (UKM)

13 JAN 2022

AIBIG organised a research and benchmarking mission for various institutions, including Telekom Research & Development Sdn. Bhd., the Faculty of Science and Technology at Universiti Sains Islam Malaysia (USIM), and the Power and Energy Research Group at Universiti Kebangsaan Malaysia (UKM). Dr. Muhammad Akmal Remli, the Director of AIBIG, led this visit, accompanied by Mr. Khairul Nizar Syazwan Wan Salihin Wong, an Associate Fellow at AIBIG, and YM Tuan Mohd Nizam bin Tuan Mustapa, a Senior Assistant Registrar at AIBIG.



## Webinar "IoT Analytics: From Data to Decision, Trends & Challenges"

19 JAN 2022

The Department of Data Science (JSD), in collaboration with AIBIG, held a webinar titled "IoT Analytics: From Data To Decision, Trends & Challenges", where the panel was Dr. Mazlan Abbas, Co-Founder and CEO of FAVORIOT Sdn. Bhd. (An IOT Thought Leader & Evangelist) and moderator Prof. Dr. Siti Zaiton Mohd Hashim, Professor of the Department of Data Science (JSD).

## Visit Ybng. Dato' Shaharuddin Abu Sohot, Department Secretary (Sub), Planning and Policy Research Division, Ministry of Higher Education (KPT) to IR4.0 Competence Centre, AIBIG



16 FEB 2022

AIBIG's IR4.0 Competence Centre welcomed a visit from YBng. Dato' Shaharuddin Abu Sohot, Divisional Secretary (SUB), Policy Planning and Research Division, Ministry of Higher Education (KPT). This visit coincided with the launch of the MoHE Star Biz Challenge TV Reality Program - Taikun Muda, in collaboration with Alhijrah Media Corporation (TV Alhijrah), for which the Ministry of Higher Education (KPT) appointed Universiti Malaysia Kelantan (UMK) to coordinate the organisation of this program through the UMK Institute of Entrepreneurship (UMKEI).

## EVENTS (2022)



### Collaboration Discussion Session With Alibaba Cloud

17 MARCH 2022

AIBIG has conducted negotiations with Alibaba Cloud to introduce Alibaba Cloud and establish cooperation in research and related fields.

### Meet & Greet Program With Data Science Department Students

23 MARCH 2022

In partnership with AIBIG, the Department of Data Science (JSD) organised a Meet and Greet Program with Students in the Experimental Hall at UMK Campus Kota. This program involved a total of 54 students. This program aimed to boost students' self-confidence, particularly in academics, and to foster a strong family spirit and mutual respect between mentors and mentees.



### Visit to The UMK Entrepreneurial Incubator for The University Leaders Entrepreneurial Educators Bootcamp Program (UniLEEB)

25 MAY 2022

This visit is part of the University Leaders' Entrepreneurial Educators Bootcamp (UniLEEB) Program, which promotes entrepreneurship competency among teachers, entrepreneurship mentors, and administrators in Malaysian higher education institutions.



### Introduction to Git & Github Workshop Organized by The Data Science Department (JSD) in Cooperation with The Institute For Artificial Intelligence and Big Data (AIBIG)

28 MAY 2022

The Data Science Department (JSD), in collaboration with AIBIG, hosted an Introduction to GIT & GITHUB session. This session provided an overview of GIT and GITHUB and demonstrated how to use them in various learning projects.

## Artificial Intelligence and Machine Learning Module Development Workshop

1 - 2 JUNE 2022

This workshop occurred from June 1 to June 2, 2022, at the IR4.0 Competence Centre, Blok C, UMK Kota Campus. The Director of AIBIG attended the workshop, and four industrial training students, along with AIBIG Fellows, participated virtually. The purpose of this workshop was to introduce an introductory training module on artificial intelligence and machine learning to the community and industry, providing them with more exposure to these topics. The module was divided into two parts: theory, which took 5 hours, and application, which took 3 hours.



## Jom Masuk IPT Program 2022 (Phase 2)

11 - 12 JUNE 2022

The Jom Masuk IPT 2022 program (PHASE 2) was held at Universiti Malaysia Kelantan to become a one-stop centre (One-Stop-Centre) aiming to promote and disseminate the latest information on higher education opportunities offered by all Public Higher Education Institutions (IPTA) and Institutions Private Higher Education (IPTS).



## "Artificial Intelligence (AI) And Big Data For Professional Course" Course

29 AUG 2022

This course occurred on 29 August 2022 at the IR4.0 Competence Centre, Blok C, UMK Kota Campus. It was attended by 17 participants, including students, lecturers, and industry professionals. This course's objective was to gain insights into how businesses can benefit from AI and to help participants understand the fundamental and theoretical concepts of AI, Big Data, and IR 4.0. The speaker for this course was YBrs. Dr. Mohamad Akmal Remli, Director of the Institute of Artificial Intelligence and Big Data, UMK Kota Campus.



## Briefing of Artificial Intelligence Applications in Teaching and Learning with LATTEL Robotics

19 OCT 2022

A briefing on the application of artificial intelligence in teaching and learning with Lattel Robotics was held on 19 October 2022 at the IR4.0 Competence Center laboratory, Universiti Malaysia Kelantan Kota Campus. This briefing aims to introduce AI and robotics in learning and teaching to provide understanding and opportunities for collaboration.



## EVENTS (2022)



### The 6th International Conference On Advances in Artificial Intelligence (ICAAI 2022) and The 3rd International Conference on Education and Artificial Intelligence Technologies (EAIT 2022)

21 - 23 OCT 2022

Dr. Muhammad Akmal Remli is one of the Conference Committees of The 6th International Conference on Advances in Artificial Intelligence (ICAAI 2022) and The 3rd International Conference on Education and Artificial Intelligence Technologies (EAIT 2022) held from 21 to 23 October 2022.

### Cloud Academy Day at UMK in Conjunction with Pecipta'22



2 NOV 2022

The Department of Data Science (JSD) and the Institute for Artificial Intelligence and Big Data (AIBIG) organised the Cloud Academy Day program with Alibaba Cloud. The program was part of the 2022 International Higher Education Institution Creation Conference and Expo (PECIPTA), which took place from 1-3 November 2022 at UMK Bachok. The Cloud Academy Day program provided students with the opportunity to gain insights into Alibaba Cloud and its support for all Alibaba Group businesses. Additionally, students had the chance to learn how to self-activate Elastic Compute Service (ECS) on Alibaba Cloud and earn points for the MY Digital Talent in the U competition.



### Hands-On Workshop on Data Analytics and Machine Learning Using Python

5 - 8 DEC 2022

This course was conducted online from 5th to 8th December 2022. It was attended by 30 participants, including students, lecturers, and industry professionals. The course had the objective of providing participants with a hands-on introduction to the Python programming language. It aimed to give them exposure to the concepts and applications of data science and data analysis using Python packages. The guest panellist for this course was YBrs. Ts. Dr. Mohd Zamri bin Osman from Universiti Malaysia Pahang Al-Sultan Abdullah (UMPSA).



## Opening Ceremony by YB. Dato' Sri Dr. Adham Baba



11 SEPT 2021

Minister of Science, Technology, and Innovation, YB. Dato' Sri Dr. Adham Baba officially inaugurated the Institute for Artificial Intelligence and Big Data (AIBIG) and the IR4.0 Competence Centre at the Universiti Malaysia Kelantan (UMK) Kota Campus, Pengkalan Chepa, Kelantan, on September 11, 2021. AIBIG is one of the Research Excellence Centers at the University of Malaysia Kelantan, focusing on areas related to the Fourth Industrial Revolution (IR4.0). AIBIG's role is to develop research and development (R&D) theories and technologies, especially in artificial intelligence and big data, to drive progress in the Fourth Industrial Revolution. In this capacity, AIBIG has collaborated with industry players in IR4.0 to nurture digital technopreneurs through partnerships with large corporations and international universities in the field of IR4.0.

## UMK's Evaluation for Ministry of Higher Education Entrepreneurship Award 2021

10 NOV 2021

On November 10, 2021, Universiti Malaysia Kelantan (UMK) welcomed a panel of judges for the Ministry of Higher Education Entrepreneurship Award 2021. The visit aimed to assess UMK's achievements in entrepreneurship and innovation. The IR4.0 Competence Centre, an integral part of Institute for Artificial Intelligence and Big Data (AIBIG), was also the focal point of evaluation to measure the university's readiness in addressing the challenges of artificial intelligence and large-scale data analysis technologies.







## >>> AIBIG FACILITIES & PRODUCTS

### IR 4.0 Competence Centre



### Workspace

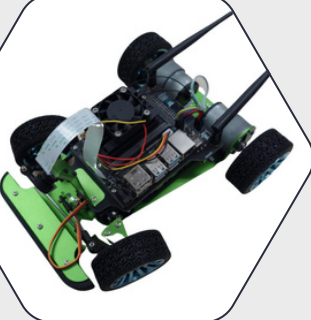


### Products

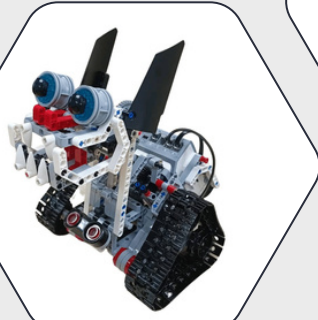
#### Robotic Arm



#### Drone

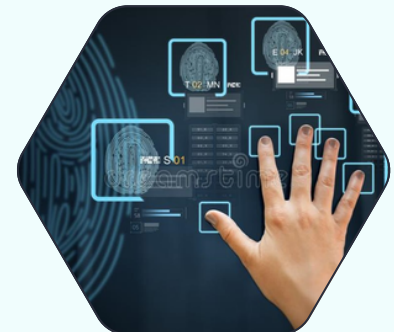


#### Jet Racer Kit



#### Lego Mindstorms

### Palm Scanning



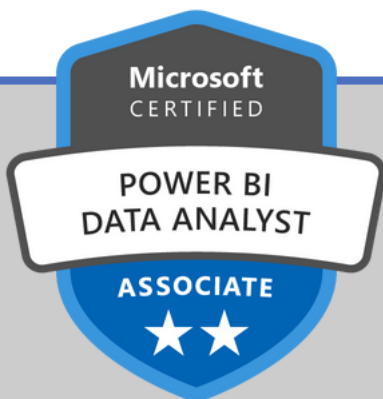
### Equipment



### Face Recognition

## >>> STUDENTS' THOUGHTS

### MICROSOFT CERTIFIED: POWER BI DATA ANALYST



The following students have passed the Power BI examination under Microsoft in 2023, for which the Power BI training was conducted by UMK for four days from August 2 to August 6 at UMK Kota Campus under the management of AIBIG & FSDK.

#### 1. How do you feel when you successfully passed the Power BI exam?

When I successfully passed the Power BI examination, I feel happy and more motivated to delve deeper into this platform. My Power BI skills will significantly benefit my job, especially in data management.

#### 2. Share your experience during the training to obtain the Power BI certification.

The training experience to obtain the Power BI certification was challenging and demanding. The Power BI program schedule is highly flexible and well-structured. Power BI training helped me in cleaning, transforming, loading, and organizing data. It taught us to design data models with meaningful visuals, dashboards, and reports. The Power BI program also guided students in performing business analysis. The experience here is significant and beneficial for my future.

#### 3. What is your dream after this?

As a student aspiring to become a human resources officer, obtaining Power BI certification will help enhance my future career prospects. Learning Power BI will equip me with data analysis skills. I aim to be an efficient human resources officer proficient in analyzing company data.

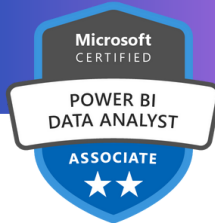


Student name: Nurul Nasuha Binti Ashyhak Ahmad  
Course Name / Education background:  
Ijazah Sarjana Muda Keusahawanan  
(Kesejahteraan) Dengan Kepujian  
Hometown: Kulim, Kedah  
Email: nnasuha155@gmail.com





Student name: Ali Ali Mohammed Alghail  
Course Name / Education background: Accounting  
Hometown: Yemen  
Email: a21a3217@siswa.umk.edu.my



1. How do you feel when you successfully passed the Power BI exam?

When I successfully passed the Power BI exam, I felt an overwhelming sense of accomplishment and satisfaction. It was a result of my dedicated preparation and hard work. This achievement boosted my confidence in my Power BI skills and knowledge. It also opened up exciting possibilities to apply my expertise in real-world data analysis projects, which I look forward to.

2. Share your experience during the training to obtain the Power BI certification.

In preparation for the Power BI certification, I participated in the program offered by the Faculty of Data Science at Universiti Malaysia Kelantan. This program gave me a structured and comprehensive approach to mastering Power BI. I dedicated a significant amount of time to studying and hands-on practice, leveraging the resources and guidance provided by the university's program. With the knowledge and skills acquired through this program, I approached the Power BI certification exam with confidence and successfully passed it.

3. What is your dream after this?

As a student aspiring to become an accountant, obtaining a Power BI certification will help me enhance my future career prospects. Learning Power BI will equip me with valuable data analysis and reporting skills, which are increasingly important in the accounting profession. These skills can make me a more competitive candidate when seeking internships or entry-level positions in accounting firms or corporate finance departments. Moreover, having Power BI expertise will set me apart from other candidates and demonstrate my commitment to staying current with industry trends and technology, which potential employers highly regard.

1. How do you feel when you successfully passed the Power BI exam?

When I successfully passed the Power BI exam, I felt very proud and satisfied. This achievement proved my hard work in understanding the platform and gave me the confidence to apply this new knowledge in my daily work.

2. Share your experience during the training to obtain the Power BI certification.

The training experience to obtain Power BI certification was challenging but highly beneficial. I attended intensive training sessions where I learned the complex aspects of this application, from data visualization to creating dynamic reports. This training helped me gain a deep understanding of how to use Power BI tools efficiently and also provided opportunities to interact with other professionals who shared similar interests.

3. What is your dream after this?

My dream for the future is to continue improving my data analysis skills and using platforms like Power BI to help organizations make better data-driven decisions.



Student name: Siti Nur Nabilah Binti Mohd Halim  
Course Name / Education background: Ijazah Sarjana Muda Keusahawanan (Perdagangan) Dengan Kepujian  
Hometown: Bangi, Selangor  
Email: snnabilah19728@gmail.com





INSTITUTE FOR ARTIFICIAL INTELLIGENCE AND BIG DATA

CAPACITIES

18

Total number of researchers and technical staffs of AIBIG on 2023

18

Total number of full time postgraduate students on 2023 (new & active)

7

Total number of advanced equipment for research and training

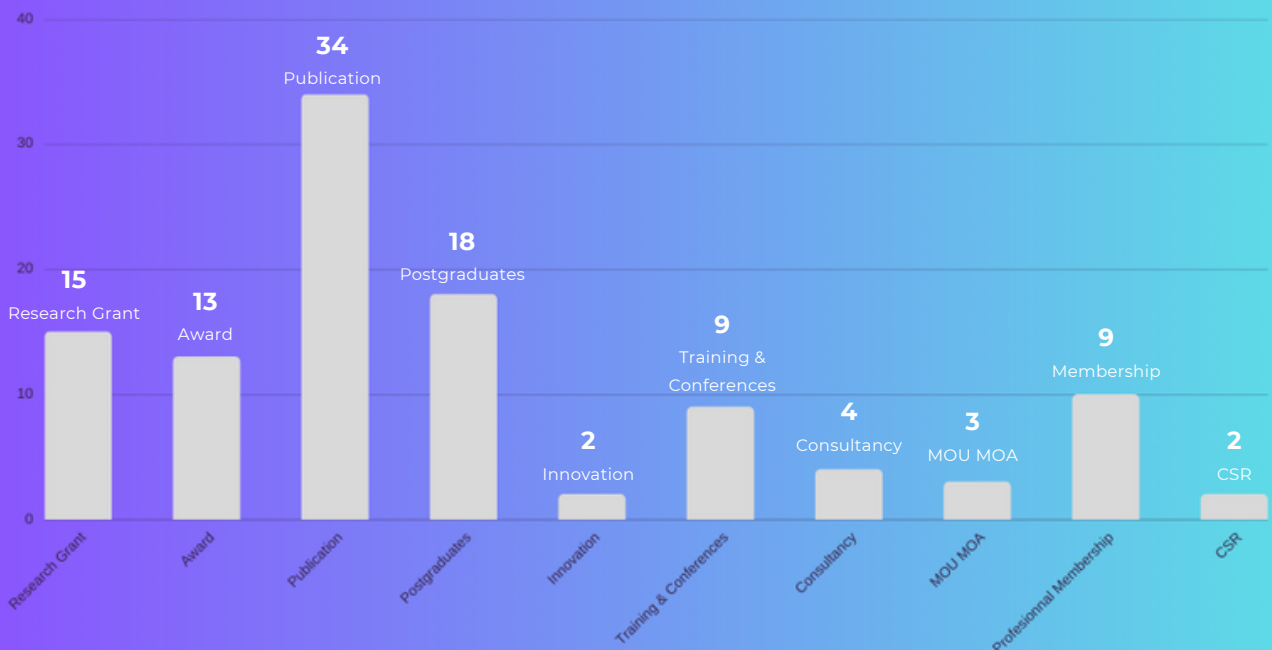
ACHIEVEMENTS

Total amount secured research grants **RM 582,700.00**

Gross income generated from various training **RM 132,085.00**

AIBIG ACHIEVEMENTS (2023)

In 2023, AIBIG excelled with 15 research projects, 13 awards, and 34 publications. They nurtured 18 postgraduates, drove 2 innovations, and hosted 9 training events. Additionally, 4 consultancy projects and 3 MOUs/MOAs were established. AIBIG gained 9 professional memberships, conducted 2 CSR initiatives, and generated RM 132,085.00 through AI and Big Data training programs.



# >>> AIBIG GALLERY



# Connect. AI. Big Data. Data Analytics

## AIBIG for Technology & Innovation

It's a platform for experts and enthusiasts to explore the latest trends, share knowledge, and collaborate on cutting-edge technologies and data-driven solutions. Connect, learn, and innovate with AIBIG for a brighter, data-powered future.

Contact us for further inquiries:



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INTELLIGENCE AND BIG DATA**  
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(Research and Innovation)  
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☎ (+609) 771 7177



**Institute For Artificial  
Intelligence and Big Data**

# PARTNER WITH US

RESEARCH, INNOVATE, COLLABORATE

Join us in the fields of Artificial Intelligence, Big Data, Data Science, Machine Learning, and Internet of Things.

## Why Partner with AIBIG?

- Skill Development
- Research Opportunities
- Community Engagement

## Ways to Collaborate:

- Research Collaborations
- Endowment Funds
- Sponsorships Opportunities (Events and Workshops)

