

JALAL UDDIN MD AKBAR

NYCU Dorm-5, 112 Beitou District, Taipei, Taiwan

jalaluddinmdakbaroo@gmail.com | Personal webpage: <https://jalaluddinakbar.github.io>

Date of birth: 07/07/1998 | Nationality: Bangladeshi | Gender: Male

EDUCATION

Universiti Malaysia Pahang Al-Sultan Abdullah, Malaysia

March 2022 - Present

Master of Science in Soft Computing & Intelligent Systems

Current marks: 88%

Thesis: Lightweight YOLOv8 with Attention Mechanism to Enhance Tomato Ripeness Detection in Smart Agriculture.

International Islamic University Chittagong, Bangladesh

March 2016 - August 2021

Bachelor of Science in Computer Science & Engineering

Final grade: 3.23/4

EXPERIENCE

National Yang Ming Chiao Tung University

July 2025 - January 2026

TEEP Research Intern

Taipei, Taiwan

- Currently working on ultra-low-dose(1%) PET image reconstruction using a hybrid deep learning approach that integrates Diffusion Models with GANs to enhance diagnostic image quality.

National Yang Ming Chiao Tung University

November 2024 - January 2025

IIPP Research Fellow

Taipei, Taiwan

- Developed and optimized AI-driven models like U-Net and CBAM-U-Net to enhance PET image quality for low-dose imaging.
- Integrated attention-based deep learning models to enhance feature extraction and improve reconstruction accuracy.
- Focused on reducing radiation exposure in PET scans while maintaining high-resolution imaging through deep learning advancements.

Universiti Malaysia Pahang Al-Sultan Abdullah

July 2022 - Present

Graduate Research Assistant

Pekan, Malaysia

- Developed Modified-YOLO and Mask R-CNN models for crop detection, achieving 97.4% mAP in greenhouse environments.
- Enhanced small-target recognition with Swin Transformer, boosting accuracy by 4.6% and recall by 2.7%.
- Developed real-time fruit maturity detection models, reducing inference time to 9.2ms while maintaining 95.5% precision.
- Deployed a lightweight fruit detection algorithm on NVIDIA Jetson devices, achieving 21.3 FPS on Xavier NX with 0.93 detection precision.
- Compiled research findings, prepared scientific reports, and contributed towards a potential journal publication.

Universiti Malaysia Pahang Al-Sultan Abdullah

January 2023 - September 2024

Graduate Teaching Assistant

Pekan, Malaysia

- Conducted practical lab sessions in "Network Programming" and "Algorithm & Complexity" courses for undergraduate students.
- Developed and delivered lab activities on network programming concepts to students.

- Evaluated and graded student work to provide feedback on their progress and areas for improvement.

PUBLICATIONS

J. U. M. Akbar, S. F. Kamarulzaman, A. J. M. Muzahid, M. A. Rahman, M. Uddin. "A Comprehensive Review on Deep Learning Assisted Computer Vision Techniques for Smart Greenhouse Agriculture," *IEEE Access*, 2024. (WoS, IF = 3.9)

J. U. M. Akbar and S. F. Kamarulzaman, "YOLOv8s-Swin: Enhanced Tomato Ripeness Detection for Smart Agriculture" *International Journal of Advanced Computer Science and Applications(IJACSA)*, 16(8), 2025.

J. U. M. Akbar, S. Fauzi Kamarulzaman, E. H. Tusher. "Plant Stem Disease Detection Using Machine Learning Approaches," *2023 14th International Conference on Computing Communication and Networking Technologies (ICCCNT), Delhi, India*.

Jumadi, J., & **Akbar, J. U. M.**. Hybrid GRU-KAN Model for Energy Consumption Prediction in Commercial Building Cooling. *IJACI: International Journal of Advanced Computing and Informatics*, 1(2), 69-78. (2025)

E. H. Tusher, **J. U. M. Akbar**, R. I. Rabbi, M. Hasan "Energy Forecasting Utilizing CNN-LSTM Attention Mechanism: Empirical Evidence from the Spanish Electricity Market," in *Machine Learning Technologies on Energy Economics and Finance– Energy and Sustainable Analytics*, (Book Chapter, Web of Science)-Accepted

E. H. Tusher, M. A. Ismail, F. Khan, A. F. M. Raffei, **J. U. M. Akbar**, "Semi-Supervised Learning: Assisted Cardiovascular Disease Forecasting using Self-learning Approaches," in *Journal of Advanced Research in Applied Sciences and Engineering Technology*, 2024(Scopus, Cite Score: 1.4, Q2)

M. S. Islam, M. M. Hasan, S. Abdullah, **J. U. M. Akbar**, N. H. M. Arafat, S. A. Murad, "A deep Spatio-temporal network for vision-based sexual harassment detection," *2021 Emerging Technology in Computing, Communication and Electronics (ETCCE), Dhaka, Bangladesh*

J. U. M. Akbar, S. F. Kamarulzaman, "YOLOv9-ResCBAM: Enhancing Tomato Ripeness Detection in Greenhouses through Advanced Object Detection," *Pertanika Journal of Science & Technology*, 2025.(Under Review)

TECHNICAL SKILLS

Programming Languages	Python (TensorFlow, Keras, PyTorch), MATLAB/Simulink, C/C++
Frameworks & Libraries	OpenCV, Sci-kit learn, NumPy, Pandas, SciPy, Matplotlib
Software Tools	Microsoft Office, Overleaf & LaTeX
Languages	Bengali (Native), English (Proficient)

HONORS AND AWARDS

NSTC IIPP Fellowship September 2024
National Science and Technology Council, Taiwan
A 3-months research fellowship awarded by Taiwan's National Science and Technology Council(NSTC).

Postgraduate Holistic Incentive Scheme March 2024
Universiti Malaysia Pahang Al-Sultan Abdullah
Competitive scholarship awarded by Universiti Malaysia Pahang Al-Sultan Abdullah.

Master's Research Scheme (MRS) December 2022
Universiti Malaysia Pahang Al-Sultan Abdullah
Merit-based scholarship awarded by the Institute of Postgraduate Study (IPS).

CERTIFICATIONS

- Huawei Certified ICT Associate– AI (HCIA-AI V3.0), Oct 2022
- Google IT Support Professional Certificate, Dec 2020