JALAL UDDIN MD AKBAR

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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 Ap proaches," in *Journal of Advanced Research in Applied Sciences and Engineering Tech nology*, 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 Postgrad uate Study (IPS).

CERTIFICATIONS

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