Dr. Md. Toukir Ahmed

Personal Data

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Education

2021- 2025	Doctor of Philosophy (Ph.D.) with Data Science & Engineering concentration *Department of Agricultural and Biological Engineering (ABE),* **University of Illinois Urbana-Champaign (UIUC),** Urbana-61801, United States **CGPA:4.00/4.00**
2012- 2017	Bachelor of Science (B.Sc.) in Computer Science and Engineering *Department of Computer Science and Engineering (CSE),* **Bangladesh University of Engineering and Technology (BUET),** Dhaka-1000, Bangladesh **CGPA:3.67/4.00**

Professional Experience

Associate Professor

– Working as an Associate Professor of the Department of Computer Science and Engineering in **Pabna University of Science and Technology (PUST)** since May 17, 2025.

– Conducted courses on Programming, Artificial intelligence, Machine learning, and Database

– Worked as an adviser of the IEEE PUST student branch

Graduate research assistant

– Worked as a graduate research assistant at the Department of ABE in **UIUC** from August 2021- April 2025.

– Conducted successful research on ML-based spectral data analysis, hyperspectral image analysis, image reconstruction, and spectroscopic software design for IOSNEL Lab.

– Served as a reviewer for reputed **Q1** journals including Pattern Recognition, Computers and Electronics in Agriculture, and Engineering Applications of Artificial Intelligence.

Research Interests

Machine Learning, Deep Learning, Explainable Artificial Intelligence, Computer Vision, Bioinformatics, Spectroscopy, Hyperspectral Image Processing, Image Reconstruction

Selected Publications

- Ahmed, Toukir, et al. (2025) **"A systematic review of explainable artificial intelligence for spectroscopic agricultural quality assessment."** *Computers and Electronics in Agriculture, 235, 110354,* **(ELSEVIER, Q1, IF: 8.9)** Article Link

- Ahmed, Toukir, et al. (2025) **"A comprehensive review of deep learning-based hyperspectral image reconstruction for agri-food quality appraisal."** *Artifical Intelligence Review, 58, 96,* **(Springer, Q1, IF: 13.9)** Article Link

- Ahmed, Toukir, et al. (2025) **"Hyperspectral imaging and explainable deep-learning for non-destructive quality prediction of sweetpotato."** *Postharvest Biology and Technology, 222,113379,* **(ELSEVIER, Q1, IF: 6.8)** Article Link

- Ahmed, Toukir, et al. (2024) **"Advancing sweetpotato quality assessment with hyperspectral imaging and explainable artificial intelligence."** *Computers and Electronics in Agriculture, 220, 108855,* **(ELSEVIER, Q1, IF: 8.9)** Article Link

- Ahmed, Md Toukir, et al. (2024) **"Deep learning-based hyperspectral image reconstruction for quality assessment of agro-product."** *Food Engineering, 382, 112223,* **(ELSEVIER, Q1, IF: 5.8)** Article Link

- Ahmed, Md Toukir, et al. (2024) **"Comparative Analysis of Hyperspectral Image Reconstruction Using Deep Learning for Agricultural and Biological Applications"** *Results in Engineering, 23, 102623* **(ELSEVIER, Q1, IF: 7.9)** Article Link

- Ahmed, Md Toukir, et al. (2024) **"SpectroChat: A windows executable graphical user interface for chemometrics analysis of spectroscopic data"** *Software Impacts, 21, 100698* **(ELSEVIER, Q3, IF: 1.3)** Article Link

- Ahmed, Md Toukir, and Mohammed Kamruzzaman (2024) **"Enhancing corn quality prediction: Variable selection and explainable AI in spectroscopic analysis."** *Smart Agricultural Technology, 8, 100458* **(ELSEVIER, Q1, IF: 6.3)** Article Link

- Ahmed, Md Toukir, et al. (2024) **"Hyperspectral Image Reconstruction for Predicting Chick Embryo Mortality Towards Advancing Egg and Hatchery Industry."** *Smart Agricultural Technology, 9, 100533* **(ELSEVIER, Q1, IF: 6.3)** Article Link

- Ocean Monjur, **Md. Toukir Ahmed**, Md Wadud Ahmed, and Mohammed Kamruzzaman (2025) **"Agro-Net: A Convolution-Attention Fusion based hyperspectral model for agro-food quality assessment."** *The Computer Vision and Pattern Recognition Conference (CVPR) Workshops 2025* Article Link

- Ocean Monjur, Ahmed, **Md. Toukir Ahmed**, et al. (2025) **"Agro-HSR: The first large-scale agricultural-focused hyperspectral dataset for deep learning-based image reconstruction and quality prediction."** *Computers and Electronics in Agriculture, 239, Part C, December 2025, 111103,* **(ELSEVIER, Q1, IF: 8.9)** Article Link

Courses Taken

- Data Structures, Algorithms, Database, Networking, Software Engineering, Artificial Intelligence, Machine Learning, Data Science, Mathematics for Machine Learning, Computational Bioengineering, Data Mining

Computer Skills

Language:	C, C++, C#, Python, Java, Assembly, R, MATLAB, PL/SQL
Analysis Tool and Library:	Weka, PyTorch, Tensorflow, Numpy, Scikit learn, NLTK
Database:	Oracle, MySQL
Operating System:	Windows, Linux, Mac
Scripting:	LaTeX, HTML, Shell Script(Linux)
Version Control:	GitHub, Box

Recognitions and Awards

- Ben and Georgeann Jones Graduate Student Award for Research Excellence (2025), University of Illinois Urbana-Champaign (UIUC), USA.

- Graduate College Conference Presentation Award for Spring 2024-UIUC, USA.

- Featured in the esteemed Popular Science Magazine and Illinois ACES for the explainable AI-based hyperspectral research.

- Featured in the WATTPoultry Magazine, ScienceDaily and Illinois ACES for deep learning-based hyperspectral reconstruction research.

- BUET Dean's List Award for academic excellence in level-4 (GPA: 3.82, session: 2014-15).