Taminul Islam

⌖ Carbondale, Illinois | ✉ taminul.islam@siu.edu | ▯ 773 209 9220

Website   LinkedIn

Summary

PhD Student in Computer Science with expertise in AI/ML, computer vision, and deep learning. Proficient in Python, TensorFlow, and data analysis with strong foundation in statistical modeling and machine learning algorithms. Led cross-functional teams to develop scalable AI solutions for real-world applications, with 27+ publications demonstrating ability to deliver high-impact research and translate academic insights into practical solutions.

Technical Skills

Programming Languages: Python, JavaScript, HTML/CSS

AI Frameworks: TensorFlow, PyTorch, Keras, Scikit-learn, OpenCV, YOLO, Transformer Models, SAM-2

Computer Vision: Semantic Segmentation, Object Detection, Image Classification, Optical Gas Imaging, Medical Imaging

Tools & Platforms: Cursor, Git/GitHub, Google Cloud Platform, VS Code, LATEX

Education

Southern Illinois University Carbondale, PhD in Computer Science — Jan 2024 – Present — Carbondale, IL
- Current GPA: 4.0/4.0, Graduate Research Assistant (AI/ML/CV) at BASE Lab

Daffodil International University, BS in Computer Science and Engineering — Jan 2018 – Dec 2021 — Dhaka, Bangladesh
- GPA: 3.52/4.0, Full Free Scholarship recipient for extra-curricular excellence

Experience

Graduate Research Assistant, BASE Lab, SIUC – Carbondale, IL — Jan 2024 – Present

- Led a four-member team and created CarboNeXT and CarboFormer (lightweight variant, 5.07M params) dual semantic segmentation architectures achieving >88.40% mIoU for CO_2 emission quantification using optical gas imaging (Preprint - **arXiv**); worked in a three-member team and developed GasTwinFormer hybrid vision transformer for livestock methane emission segmentation and dietary classification in OGI (**Accepted: ICCV 2025 Workshop - Oral**)
  ⍟ Code: [CarboNeXT/CarboFormer] | [GasTwinFormer]

- Led a three-member team and developed WeedSwin hierarchical vision transformer achieving >99.3% accuracy in weed detection and growth stage classification, published in **Scientific Reports**, and created WeedSense multi-task learning architecture for weed segmentation, height estimation, and growth stage classification (**Accepted: ICCV 2025 Workshop - Poster**) ⍟ Code: [WeedSwin]

Recent Key Publications

- **Islam, T.**, Sarker, T. T., Embaby, M. G., Ahmed, K. R., & AbuGhazaleh, A. (2025). CarboNeXT and CarboFormer: Dual Semantic Segmentation Architectures for Detecting and Quantifying Carbon Dioxide Emissions Using Optical Gas Imaging. *arXiv preprint arXiv:2506.05360*.

- **Islam, T.**, Sarker, T. T., Ahmed, K. R., Rankrape, C. B., & Gage, K. (2025). WeedSwin hierarchical vision transformer with SAM-2 for multi-stage weed detection and classification. **Scientific Reports**, *15*(1), 23274.

- **Islam, T.**, Sheakh, M. A., Tahosin, M. S., Hena, M. H., Akash, S., Bin Jardan, Y. A., ... & Bourhia, M. (2024). Predictive modeling for breast cancer classification in the context of Bangladeshi patients by use of machine learning approach with explainable AI. **Scientific Reports**, *14*(1), 8487.

Awards & Leadership

Competition: 3rd Place Awarded in 2025 Illinois Young Innovator of the Year in 2025 among 16 selective talks by Falling Walls Lab Illinois.

Research & Academic: Associate Editor (Frontiers in Medicine Q1), 13 peer reviews, ACM Professional Member

Leadership: General Secretary, Bangladesh Student Association (Best RSO Award 2025), Captain - Cricket & Badminton Champions SIUC 2024-2025