Shakil Ahmed

Computer Vision and Deep Learning

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Portfolio GitHub LinkedIn ORCID Google Scholar

MOTIVATION

My research interests lie in deep learning and modern AI, in particular computer vision and large language models. I am motivated by the ability of current vision models to detect patterns that human observers overlook, and by the challenge of turning this ability into reliable solutions for real-world problems. I intend to pursue doctoral research with full commitment, carrying ideas from the research question through to methods and tools that others can use.

EDUCATION

M.Sc. in Computer Science — *Sept 2024 – June 2026*

Aarhus University, Aarhus, Denmark

Thesis	*Beyond the Annotation Bottleneck: Unsupervised Fine-Grained Clustering and Zero-Shot Annotation of Biodiversity Imagery with Vision Foundation Models*
Supervisors	Kim Bjerge and Christian Nørgaard Storm Pedersen
Courses	Deep Learning for Visual Recognition, Data Mining, Data Visualization, Statistical and Machine Learning in Bioinformatics

M.Sc. in Computer Science — *2021*

American International University-Bangladesh (AIUB), Dhaka, Bangladesh

Major	Intelligent Systems
Grade	CGPA 4.00 / 4.00, Summa Cum Laude
Thesis	*Attention-Based Bi-LSTM and Sequential LSTM for Describing Video in the Textual Formation*
Courses	Computer Vision and Pattern Recognition, Image Processing, Natural Language Processing

B.Sc. in Computer Science — *2020*

American International University-Bangladesh (AIUB), Dhaka, Bangladesh

Grade	CGPA 3.86 / 4.00, Magna Cum Laude
Thesis	*An Observation of Vision Based Underwater Object Detection and Tracking*

PUBLICATIONS

BioCluster: Clustering and Zero-Shot Labeling of Ecological Images Using Foundation Models

Ahmed, S., Bjerge, K., Høye, T. T., Pedersen, C. N. S.

PREPRINT *bioRxiv, 2026* DOI

Multicriteria Decision Analysis for Optimal Internet Service Provider Selection Using Calibrated Random Forest

Haque, M. M.-U., **Ahmed, S.**, Aftab, R. S., Miah, M. S. U., Akanda, W., Bhowmik, A.

CONFERENCE *Asian Conference on Communication and Networks (ASIANComNet), Bangkok, 2024* DOI

Att-BiL-SL: Attention-Based Bi-LSTM and Sequential LSTM for Describing Video in the Textual Formation

Ahmed, S., Saif, A. F. M. S., Hanif, M. I., Shakil, M. M. N., Jaman, M. M., Haque, M. M.-U., et al.

JOURNAL *Applied Sciences 12(1), 317, 2021* DOI

An Observation of Vision Based Underwater Object Detection and Tracking

Ahmed, S., Khan, M. F. R., Labib, M. F. A., Chowdhury, A. E.

CONFERENCE *Emerging Technologies in Computer Engineering (ICETCE), Jaipur, 2020* DOI

Anti-Molestation: An IoT Based Device for Women's Self-Security System to Avoid Unlawful Activities

Hanif, M. I., **Ahmed, S.**, Akanda, W., Barman, S.

JOURNAL *International Journal of Advanced Computer Science and Applications 11(11), 2020* DOI

EXPERIENCE

Research Assistant
Nov 2026 – Present

Department of Electrical and Computer Engineering, Aarhus University, Aarhus, Denmark

Supervisor Kim Bjerge

- Testing BioCluster on insect image data from different geographical regions beyond Denmark
- Integrating BioCluster with the existing species monitoring and database system

Teaching Assistant
Jan 2025 – Jan 2026

Aarhus University, Aarhus, Denmark

Courses Deep Learning for Visual Recognition; Computer Architecture; Networks and Operating Systems

- Helped more than 50 students implement, tune and evaluate vision models in PyTorch and TensorFlow
- Prepared solutions to systems exercises, graded assignments and supported students in lab sessions

Mobile Application Developer
Mar 2022 – July 2024

IT Garage, Dhaka, Bangladesh

- Built cross-platform Android and iOS apps in Flutter for government projects and published them on Google Play and the App Store, working in cross-functional teams

Lecturer and Trainer
Sept 2021 – Jan 2022

ICT Division, Ministry of ICT, Bangladesh

- Taught Flutter and Dart to more than 160 trainees in a cross-platform mobile app development programme and supervised 16 student-led app projects

Teaching Intern
June 2019 – Sept 2019

American International University-Bangladesh, Dhaka, Bangladesh

- Assisted in Object Oriented Programming 1 (Java) labs and supervised student group projects

SOFTWARE AND PROJECTS

BioCluster GitHub
2026

Open-source Python tool with a desktop app, developed with Kim Bjerge, that implements the thesis framework: features from vision foundation models (BioCLIP, CLIP, DINOv2), dimensionality reduction and clustering, zero-shot species labels, and an interactive report for expert review.

Image captioning with attention GitHub

ResNet-101 encoder and LSTM decoder with soft attention and beam search, trained and evaluated on Flickr8k, with attention maps to inspect what the model looks at.

Cell tower explorer GitHub

Interactive dashboard of global cell tower density, built with Plotly Dash and pandas.

SKILLS

Programming	Python, C++, R, Dart
Deep learning	PyTorch, TensorFlow, CNNs, Vision Transformers, RNNs and LSTMs, attention, transfer learning, domain adaptation
Vision and data	Vision foundation models (CLIP, BioCLIP, DINOv2), clustering and dimensionality reduction (UMAP, HDBSCAN), NumPy, pandas, Matplotlib, Plotly
Tools	Git, Jupyter, VS Code, LaTeX, Flutter

ACADEMIC SERVICE

Peer reviewer for Neurocomputing; Image and Vision Computing; Journal of King Saud University - Computer and Information Sciences; Journal of Medical Engineering and Technology.

AWARDS AND CERTIFICATES

Dean's List, three times, AIUB *2017 – 2019*

CS-FEST 2018, first runner-up in the desktop application showcase, AIUB

Coursera: Computer Vision Basics; Python for Everybody Specialization *2020*