Md Zahidul Islam

Lecturer, Dept. of Computer Science and Engineering, Islamic University of Technology

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Education

Islamic University of Technology (IUT) — *Dhaka, Bangladesh* — *Jan 2017 – March 2021*

B.Sc. in Computer Science and Engineering (CSE)

- **CGPA** — **3.99**/4.0, **Ranked 1st** *in class of 86*
- **Thesis Supervisor** - Professor Dr. Md. Hasanul Kabir
- **Thesis Title** — Efficient Two-Stream Network for Violence Detection Using Separable Convolutional LSTM

Cumilla Cadet College — *Cumilla, Bangladesh* — *2010 – 2016*

- Higher Secondary Certificate, 2016 - GPA: **5**/5
- Secondary School Certificate, 2014 - GPA: **5**/5

Professional Experience

Islamic University of Technology (IUT) — *Dhaka, Bangladesh* — *July 2021 – Present*

Lecturer, Dept. of Computer Science and Engineering (CSE)

- **Courses Conducted** - Digital Signal Processing, Computer Programming, Integral Calculus, Algorithm Engineering etc.
- **IUT Computer Vision Lab** - Research collaboration with colleagues and thesis co-supervision of students.

Apurba Technologies Ltd. — *Dhaka, Bangladesh* — *March 2021 – June 2021*

Machine Learning Engineer

- Research and development of large-scale Bengali Optical Character Recognition (OCR) pipelines.
- Developed and optimized deep learning models for grapheme-based Bengali character recognition on both handwritten and printed datasets.
- Implemented image processing and deep learning algorithms for word detection and character segmentation.

Samsung R & D Institute Bangladesh — *Dhaka, Bangladesh* — *Nov 2019 – Jan 2020*

Intern, Mobile Application Development and Research

- Developed user identification system by recognizing human walking patterns using machine learning on smartphone accelerometer data.

Research Experience

[Scholar] [ORCID]

Research Interests

- My research interests lie in **Computer Vision**, **Pattern Recognition**, and **Machine Learning**.
- I am particularly interested in image and video recognition, object detection, and neural network design.

Publications

[1] **Z. Islam**, M. Rukonuzzaman, R. Ahmed, M. H. Kabir and M. Farazi, **"Efficient Two-Stream Network for Violence Detection Using Separable Convolutional LSTM"**, International Joint Conference on Neural Networks **(IJCNN)**, Shenzhen, China, July 18-22, 2021, pp. 1-8 [paper] [code]

[2] A. S. A. Rabby, M. M. Islam, **Z. Islam**, N. Hasan and F. Rahman, **"Towards Building A Robust Large-Scale Bangla Text Recognition Solution Using A Unique Multiple-Domain Character-Based Document Recognition Approach"**, 2021 20th IEEE International Conference on Machine Learning and Applications (ICMLA), Pasadena, CA, USA, Dec. 13-16 2021, pp. 1393-1399 [paper]

Under Peer-Review

[1] **Z. Islam**, R. Fariha, **"Leveraging Transformer Network and Strong Inter-feature Correlation for Forecasting of Weather in Bangladesh"**, Sept. 2022

Reviewing Experience

- Reviewed articles for **IJCNN** (x4), **IEEE Access** (x2), and **Applied Artificial Intelligence** (AAAI) (x1).

Technical Skills

- Proficient in designing and implementing deep learning models and applications on **Pytorch** and **Tensorflow**.
- Programming - **Python, C++, C, Java** • Web - **HTML, CSS, JS** • Image Processing - **Python-OpenCV, Matlab**

Projects

[github.com/zahid58]

EasyScan OCR Whiteboard *Python, OpenCV, Tesseract*

- A interactive GUI digital whiteboard with live handwriting recognition (OCR). This feature allows saving whiteboard sessions as texts and helps improve the understandability of the handwriting.

Inpainter *Python, PyQt, OpenCV*

- A GUI application that helps fill up missing/damaged areas or remove foreground objects from images.

Dhaka Traffic Detection *Python, Pytorch*

- Tested performance of prominent object detection algorithms such as Yolov3, Yolov5, and hybrid models (Yolov5+ResNet) on Dhaka Traffic Detection Challenge Dataset.

Traffic Sign Localization and Recognition *Python, Tensorflow*

- A two stage system where at first, region of interests likely to contain traffic signs are found out using *Voila-Jones* object detection algorithm. Then, a deep neural network recognizes the traffic signs.

Tsaurus - A Learning App for Kids *Node JS, Python, OpenCV*

- Helps children learn new words in a fun way by simply taking photo of text. The software fetches relevant images, dictionary meaning etc. from internet. It uses OCR and webscrapping tools.

Inverse Kinematics *Python, Sympy, Matplotlib*

- Automates movement of a robotic arm with 6 degrees of freedom and visualizes it using an easy to use PyQt GUI.

Awards & Accolades

Robotics - European Rover Challenge, Poland *2019, 2018*

- Achieved 15th position in ERC 2019 and 14th position in ERC 2018 with IUT Mars Rover-Team Avijatrik. Worked on robotic arm manipulation and cache retrieval by image processing.

Matlab Programming Challenge *2020, 2019*

- Champion in Matlab Mania at *Horizon 2020*, KUET and in Matlab Challenge at *Esonance 2019*, IUT.

ICT Olympiad *2019*

- Champion in the quiz competition "ICT Olympiad" at IUT 10th ICT Fest organized by dept. of CSE, IUT.

Line Following Robot (LFR) Racing *2018*

- Runners up in LFR Racing at *Technovision* organized by ECE dept., North South University.

Scholarships *2016, 2014*

- OIC Scholarship for 3 years of undergraduate studies at IUT by Organization of Islamic Cooperation (OIC).
- Higher Secondary Certificate and Secondary School Certificate exam scholarships by Bangladesh Govt.

Online Certifications

[verify]

- **Deep Learning Specialization, Tensorflow Developer Specialization**, *by DeepLearning.AI, coursera.org*
- **Machine Learning**, *by Andrew Ng, Stanford University, coursera.org*

Standardized Test Scores

- **GRE** : Quantitative - **167**/170, Verbal - **161**/170, Analytical Writing - **4.0**/6.0 *Oct 2021*
- **TOEFL** : Total - **110**/120, Reading - 29, Listening - 30, Speaking - 23, Writing - 28 *Sept 2021*

Reference

Dr. Md. Hasanul Kabir
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