Md Nafee Al Islam

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Research Interest

- Machine Learning
- Artificial Intelligence
- Computer Vision
- Image and Signal Processing
- Natural Language Processing
- Robotics

Education

Islamic University of Technology (IUT) *Gazipur, Bangladesh*
B.Sc. in Electrical and Electronic Engineering *Dec. 2012 - Nov. 2016*
- CGPA: **3.95 out of 4**
- Class position 8th out of 83 students

Research Experience and Publications

[1] **N. A. Islam**, S. K. Khan, "HishabNet: Detection, Localization and Calculation of Handwritten Bengali Mathematical Expressions" (submitted to IEEE ICCIT 2019).

- HishabNet, a **Convolutional Neural Network (CNN) based object detection model** was constructed which can recognize and evaluate handwritten Bengali mathematical expressions
- The YOLOv3 algorithm was utilized for the object detection task.
- A new dataset - 'Hishab' was engineered which is the first Bengali handwritten digits dataset intended for object detection.
- The work is under review in "22nd IEEE International Conference on Computer and Information Technology (ICCIT), 2019"
- Arxiv Pre-print: https://arxiv.org/abs/1909.00823

[2] **N. A. Islam**, T. B. Hassan, S. K. Khan, "A CNN Based approach to classify Bangladeshi cricket bowlers based on their bowling actions" (submitted to IEEE RaaiCon). Link to arXiv: https://arxiv.org/abs/1909.01228

- A Convolutional Neural Network model was designed to classify cricket bowlers based on their bowling actions.
- VGG16, a famous pre-trained transfer learning model was taken and modified to build the classifier using the Tensorflow framework.
- The work is under review in "IEEE International Conference on Robotics, Automation, Artificial-Intelligence and Internet-of-Things, 2019"
- Arxiv Pre-print: https://arxiv.org/abs/1909.01228

[3] T. Kawser, **N. A. Islam**, S. Arman, H. Bhuiyan ,"Adaptive Control of CRE with Proportional Fair Resource Scheduling in LTE HetNets", in International Journal of Computing and Network Technology, 2018, Vol. 6, pp. 57-62.

- Undergraduate thesis work under the supervision of Dr.Mohammad Tawhid Kawser. Here, an algorithm to control the Cell Range Extension (CRE) to maintain the balance of loads (data rate) between the macro and pico cells of a HetNet was proposed.
- Paper link: https://journal.uob.edu.bh/handle/123456789/3407.

[4] M. Rahman, S. Alam, M. Islam, M. Samy, **N. A. islam**, "Cooperative MIMO OFDM system based on Amplify and Forward Relay" in Evaluation of ZF-SIC and MMSE-SIC equalization. PRZEGLĄD ELEKTROTECHNICZNY, (2018), Vol. 1(9), pp. 77-81.

- In this work, a mathematical model for cooperative multiple input multiple output (MIMO) OFDM system was developed and tested on different detection schemes.
- DOI: 10.15199/48.2018.09.19

Standardized Test Scores

- GRE Score: **322** (Quantitative Reasoning-**169**, Verbal Reasoning-153, Analytical Writing Ability- 3.5).
- TOEFL iBT Score: **104** (Reading-26, Listening-25, Speaking-26, and Writing-27).

Professional Experience

Ahsanullah University of Science and Technology (AUST) *Dhaka, Bangladesh*
Lecturer, Department of EEE *Jan. 2019 - Present*

Northern University Bangladesh *Dhaka, Bangladesh*
Lecturer, Department of EEE *May 2017- Dec 2018*

Certified MOOC Courses

- "Machine Learning" offered by Stanford University and instructed by Dr. Andrew Ngon Coursera platform.
- "Convolutional Neural Networks" offered by deeplearning.ai and instructed by Dr. Andrew Ng on Coursera platform.
- "Introduction to TensorFlow for Artificial Intelligence, Machine Learning, and Deep Learning" offered by deeplearning.ai and instructed by Laurence Moroneyon Coursera platform.
- "Convolutional Neural Networks in TensorFlow" offered by deeplearning.ai and instructed by Laurence Moroneyon Coursera platform..

Academic Projects

- Designing and implementation of an arithmetic Logic Unit (ALU)
- Designing and instrumentation of a Password protected bi-directional motor using 8051 Microcontroller
- Water level detector using Arduino and ultrasonic sensors
- Home security alarm system using Arduino Uno

Programming Language Proficiency

- Languages: Python, C, MATLAB, Android, Assembly Languages(8086,8051)
- Software: Jupyter, OCTAVE, Spyder, Proteus, emu8086, Android Studio, PSpice