Ataher Sams

PhD Student

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Education

Aug 2023 - Ongoing | **University of Illinois Chicago** | Chicago, IL
PhD in Electrical Engineering

Feb 2017 - May 2022 | **Bangladesh University of Engineering and Technology** | Dhaka, Bangladesh
B.Sc in Electrical and Electronic Engineering
Thesis: SignBD-Word: Bangla Word-level Video-based Sign Language and Pose Translation

Research Interest

Wireless Communication | Information Theory | Artificial Intelligence | Biometrics

Research Experience

- Conducting research on Integrated Sensing and Communications for 6G.
- Conducted research on generative adversarial networks (GANs) for high-quality synthetic fingerprint generation and realistic gastrointestinal polyp image synthesis using deep learning techniques.
- Designed and developed deep learning models for license plate detection and recognition in a multi-step process for all types of Bangladeshi vehicles.

Publications

2023 | **[C3] A. Sams**, A.H. Akash, S. M. Rahman, "SignBD-Word: Bangla Word-level Video-based Sign Language and Pose Translation," 14th International Conference On Computing, Communication And Networking Technologies, 2023.

2022 | **[J1] A. Sams**, H. H. Shomee, and S. M. Rahman, "HQ-fingan: High-quality synthetic fingerprint generation using GANs," Circuits, Systems, and Signal Processing, vol. 41, no. 11, pp. 6354–6369, 2022.
[C2] A. Sams and H. H. Shomee, "GAN-based realistic gastrointestinal polyp image synthesis," 2022 IEEE 19th International Symposium on Biomedical Imaging (ISBI), 2022.

2021 | **[C1]** H. H. Shomee and **A. Sams**, "License plate detection and recognition system for all types of Bangladeshi vehicles using multi-step deep learning model," 2021 Digital Image Computing: Techniques and Applications (DICTA), 2021.

Work Experience

Aug 2023 - Ongoing | **University of Illinois at Chicago** | Chicago, IL
Research Assistant
- Conducting research on Integrated Sensing and Communications for 6G.

Aug 2023 - Ongoing | **University of Illinois at Chicago** | Chicago, IL
Teaching Assistant
- Supervising senior undergraduate students with coursework and projects for the "Digital Communication" course.

Oct 2022 - May 2023 | **Brac University, Bangladesh** | Dhaka, Bangladesh
Lecturer
- Instructed theory and lab courses: Circuits and Electronics | Electronic Devices and Circuits | Digital Electronics and Pulse Techniques

Jul 2022 - Oct 2022 | **Bangladesh University of Textiles** | Dhaka, Bangladesh
Lecturer
- Instructed theory and lab courses: Fundamentals of Electrical and Electronics Engineering | Utility Machinery

Technical Skills

- **Programming Languages**: Python, MATLAB, C, C++, Assembly Language, VerilogHDL, HTML
- **Data Science Tools**: OpenCV, Pandas, Scikit-Learn, Keras, Tensorflow
- **Hardware and Circuit Simulation**: Arduino IDE, Proteus, PSPICE, Simulink

Academic Projects

1. Three-storied building design (*AutoCAD*)
2. IoT Weather Station (*Arduino, STM32, Proteus*)
3. Analysis of HVDC system (*Simulink*)
4. Phoneme-Based Bangla Digit Recognition (*MATLAB*)
5. Tetris Game Implementation (*Verilog, Arduino, Proteus*)
6. Text Transmission Through Laser (*Arduino*)
7. Application of Three-Phase Linear Induction Motor (*Hardware*)
8. Bangla Number Plate Recognition Using Template Matching (*MATLAB*)

Honors and Awards

- **AI FOR BANGLA 2.0**
  - Winner in the Specific Innovative Solution Category (2023)
- **BANGLADESH MATHEMATICAL OLYMPIAD**
  - Winner, National Round (2008, 2011)
  - Winner, Divisional Round (2008, 2010, 2011, 2013, 2014, 2015)
- **ANALYTICAL OLYMPIAD by BracU**
  - 2nd Runner-up (2021)
- **DIVISIONAL SCIENCE OLYMPIAD by BANGLADESH ACADEMY OF SCIENCES**
  - 6th in HSC level (2015)
- **HSC, SSC, and JSC BOARD SCHOLARSHIP, Chittagong Board**
  - Talent Pool Grade (2016, 2014, 2012)