Ismail Hossain

PhD Student at School of Computing
Research Assistant at SUPREME Lab.
Available: May 18, 2024 to August 12, 2024

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Research Interest

My research interests are primarily in federated learning, machine learning, deep learning, online and social networks, IoT, cyber-physical systems, AI security, mobile crowdsourcing, and edge computing.

Research Experience

Conference Papers

Areas: Social Networks, NLP, Federated Learning, Machine Learning, Differential Privacy, Mobile Crowdsourcing

- "A Visual Approach to Tracking Emotional Sentiment Dynamics in Social Network Commentaries" (IEEE/ACM ASONAM), Nov 2023 (Accepted)
- "Collaborative Differentially Private Federated Learning Framework for the Prediction of Diabetic Retinopathy" (IEEE ICAIC), Dec 2022
- "Machine Learning and Sentimental Analysis for Predicting Environment Lead Toxicity in Children at the ZIP Code Level" (IEEE ICAIC), Dec 2022
- "Towards Federated Learning-based Contraband Detection within Airport Baggage X-Rays" (IEEE ICMLANT), Nov 2022
- "An Evolutionary Population Census Application Through Mobile Crowdsourcing" (Springer ICICO), Oct 2020

Workshop Papers

Areas: Federated Learning, Machine Learning

- "A Novel Hierarchical Federated Learning with Self-Regulated Decentralized Clustering" (ACM CCSC), Oct 2022
- "Federated Learning-based Contraband Detection within Airport Baggage X-Rays" (ACM CCSC), Oct 2022
- "Prediction of Childhood and Pregnancy Lead Poisoning Using Deep Learning" (ACM CCSC), Oct 2022

Reviewer Experience

Reviewed two research articles on Online & Social Networks and Machine Learning

Conference: ASONAM 2023 - The 2023 IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining Marrakesh (Morocco, 6-9 November 2023)

Professional Experience

Samsung R&D Institute Bangladesh (SRBD)   *Feb. 2019 – Aug. 2022*
Sr. Software Engineer   *Dhaka, Bangladesh*

- Web-based app development for 4G & 5G developers and testing of software modules
- Requirement analysis, Static analysis, and process improvement
- Improvement and optimization of legacy software systems
- Remote collaboration with clients and mentoring new team members
- Business trip to Suwon, South Korea for an in-person meeting and a release of a new module.
- Project initiating and driving to completion with minimal guidance
- Worked on innovative idea and patent generation

Programming Skill

Online and Onsite Programming Contests *2014 – 2022*
Competitive Progrmmer *Bangladesh*

- Solved 1000+ problems in different Online Judge (i.e. Leetcode, Codeforces, Uva, LightOj, SPOJ, Hacker-Rank)
- Participation, National level, Divisional level and ACM International Collegiate Programming Contest (ICPC), Dhaka Regional, 2018
- Participation, Problem-solving and weekly practice contests, and monthly programming contests that are organized by Samsung.
- Capability of analyzing program time and memory complexity
- Expertise in Data Structures and Algorithms

Technical Expertise

Programming Languages	: C, C++, Java, Python
Frameworks & Platforms	: Numpy, Scikit-learn, TensorFlow, PyTorch, Hugging-face, PowerBI, Tableau, Spark, Spring Boot, NodeJS, Angular, AgGrid, Angular Material, JUnit, Mokito, Bootstrap
Development Tools	: Git, GitHub, IntelliJ IDEA, Visual Studio Code, PyCharm, Anaconda, MatLab
Dataset	: MySQL, Mongo

Achievements

Team rank 16th in the USA and 4th in Illinois	: U.S. Dept. of Energy CyberForce Competition, 2022
Outstanding Collaborator Award	: Quarter 1, Samsung R&D Institute, Bangladesh, 2021
Winner, Silver Category	: Quarter 4, Software Code Review Contest 2020, Network Global R&D Centers, Samsung Electronics
Advance Level Certificate	: Samsung Global Software Certificate on Competitive Programming Contest, 2019

Academic Credentials

PhD in Computer Science *Southern Illinois University Carbondale, IL, USA*
School of Computing's PhD Program *Fall 2022 – Present*

Fully Funded Scholarship
CGPA: 3.94 out of 4

BS in Computer Science & Engineering *Chittagong University of Engineering & Technology (CUET)*
Bachelor's degree program *Mar. 2014 – Nov. 2018*

Major: Computer Science & Engineering
Final CGPA: 3.47 out of 4

Undergrad Major Project

Population Census App
Android | Java | Firebase | MCS Technique

- A demo app for national census using mobile crowdsourcing. It includes data collection, worker location tracking via Google Maps, redundancy checks, two-way verification, and real-time result generation.

Extracurricular Activities

Active Member	: Bangladesh Student Association (BSA) at SIU, Bijoy-er-Alo (an organization of Blood donor managing and social welfare activities)
Organizing Event	: Freshers Recption'16, CUET CSE Fest'17, and ICT Olympiad'17 for High School students, and the Annual Team Outing program at Samsung