Ismail Hossain

PhD Student at School of Computing
Research Assistant at SUPREME Lab.

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Research Interest

Federated Learning | Machine Learning | Deep Learning | Natural Language Processing | Social Networks | IoT | Cybersecurity | Software Engineering

Research Experience

Conference Papers

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

- "Monitoring Dynamics of Emotional Sentiment in Social Network Commentaries" (IEEE/ACM ASONAM), Nov 2023 (Lead Author)
- "Combating Identity Attacks in Online Social Networks: A Multi-Layered Framework Using Zero-Knowledge Proof and Permissioned Blockchain" (IEEE/ACM ASONAM), Nov 2023
- "Towards Addressing Identity Deception in Social Media using Bangla Text-Based Gender Identification" (IEEE/ACM ASONAM), Nov 2023
- "Collaborative Differentially Private Federated Learning Framework for the Prediction of Diabetic Retinopathy" (IEEE ICAIC), Dec 2022 (Lead Author)
- "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 (Lead Author)

Book Chapters

Areas: Machine Learning, Healthcare

- "Introduction of Medical Imaging Modalities" (Springer), 2023
- "Active Learning on Medical Image" (Springer), 2023
- "AutoML Systems For Medical Imaging" (Springer), 2023

Reviewer Experience

Reviewed two research articles on Online & Social Networks and Machine Learning (ASONAM 2023)

Achieved experience with others' paper writing and presenting style that will remind me when writing papers

Professional Experience

Southern Illinois University Carbondale
Research Assistant at SUPREME Lab.

Aug. 2022 – Present
Illinois, USA

- Conduct in-depth literature reviews to understand the prior arts
- Collaborate with researchers to design, develop, and optimize algorithms
- Collect and analyze data for experiments, simulations, or data-driven research projects
- Write and maintain code for research projects, including feature engineering, model evaluation, and optimization
- Prepare the research papers and presentations for conferences and journals
- Assist in training and mentoring junior research assistants, and undergraduate students
- Participate in online Machine Learning and NLP competitions (e.g. Kaggle)
- Led a team for the Cyberforce23 competition

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

- Specialized in web-based application development tailored for 4G and 5G technologies.
- Proficiently conducted requirement analysis, performed static analysis.
- Demonstrated expertise in enhancing and optimizing legacy software systems.
- Business trip to Suwon, South Korea, for a crucial in-person meeting and the launch of a new module.
- Took ownership of projects, from initiation to completion.
- Achieved remarkable ability to work autonomously with minimal guidance.
- Pioneered innovative ideas and actively participated in patent/ideas generation activities.
- Accomplished over 80+ Jira tasks and resolved more than 30 PLM issues.
- Recognized as the top contributor in August 2022, with an impressive record of over 800+ commits, 50+ pull requests, and 250+ code reviews.

Programming Skill

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

- Expertise in problem-solving and data structures (LinkedList, Heap, HashMap, Trie Tree, BST, Segment Tree) and Algorithms (Binary Search, Graph Theory, Dynamic Programming, Number Theory).
- Solved 1000+ problems in different Online Judges (e.g. Leetcode, Codeforces, Uva, HackerRank).
- Capability of analyzing program time and memory complexity.
- Participation, National level, Divisional level and ACM International Collegiate Programming Contest (ICPC), Dhaka Regional, 2018.

Technical Skills

Languages	: C, C++, Java, Python, TypeScript
Libraries	: Numpy, Pandas, Scikit-learn, Keras, NLTK, Matplotlib
Frameworks	: PyTorch, Spring Boot, NodeJS, Angular, AgGrid, JUnit, Mokito.
Platforms	: Hugging-face, Kaggle, Weights & Biases, Android
Dataset	: RDBMS (MySQL, PostgreSQL), NoSQL (Mongo).
Others	: RESTful, Git, GitHub, Swagger, VS Code, Inkscape
Comfortable	: Power BI, R, RStudio, GGplot, Anaconda, MatLab, Tensorflow, Keras, Flower, Flask, Selenium, Beautiful-Soup, ReactJs, JavaScript, PHP, C#, HTML, CSS
Familiar	: AWS (EC2, Lambda, Cloud9, S3, DynamoDB, SageMaker), Cybersecurity (Nmap, Nessus, Wireshark), Web (Next.js, Express.js, Django, Redux), Firebase, Jenkins, GraphQL, Fuzzywuzzy, Pymongo, Elasticsearch

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.

References

Dr. Sajedul Talukder   *Southern Illinois University Carbondale, IL, USA*

Assistant Professor at School of Computing   *sajedul.talukder@cs.siu.edu*

Director of SUPREME Lab.