

Md Mahbubur Rahman

✉ mdrahman@iastate.edu | in/mahbubcseju | mahbubcseju.com | [/mahbubcseju](https://github.com/mahbubcseju) | ☎ (515) 708-6532

EDUCATION

Ph.D. in Computer Science, Iowa State University, Ames, IA, USA Aug 2021 – May 2025 (Expected)
Specialization: **AI for Code, Software Engineering (SE), Causal Deep Learning**

- Working in causal deep learning and interpretability methodologies, my goal is to refine state-of-the-art software engineering models by identifying and eliminating the impact of spurious features, thus improving the accuracy and reliability of their predictions.

M.S. in Computer Science, Iowa State University, Ames, IA, USA Aug 2021 – Dec 2023
Specialization: **AI for Code, Software Engineering (SE), Causal Deep Learning**

- GPA: (4.00/4.00) - **Top 1% of class.**
- Thesis: Towards Causal Deep Learning for Vulnerability Detection [1]

B.S. in Computer Science, Jahangirnagar University Jan 2013 – Apr 2018
Specialization: **Algorithms and Data Structures**

- GPA: (3.70/4.00)
- Thesis: Automatic Image Stitching using Feature Based Method

EXPERIENCE

Graduate Research Assistant, Iowa State University, Ames, IA May 2022 – Present
Tech Stack: PyTorch, Python, Hugging Face, Scikit-Learn, LLM, Pandas, Numpy, Matplotlib, Seaborn, Captum

- **CausalVul [1]**: Leveraged do-calculus-based causal learning algorithms on top of existing transformer-based vulnerability detection models to systematically eliminate reliance on spurious features, enhancing causal-based predictions.
- **Empirical Study on DL Models for Code Vulnerability [2]**: Surveyed and reproduced 9 state-of-the-art DL models on the Devign and MSR datasets. Investigated model capabilities, training data effects, and interpretability, revealing key insights to improve model robustness and understandability.

Full Stack Software Engineer, crowd-realty.com, Tokyo, Japan Nov 2019 – July 2021
Tech Stack: Python, Django, Javascript, Node.js, React, MySQL, AWS, EC2

- **API & Notification System**: Led the design and development of REST APIs using Python, Django, and Node.js. Further enhanced the system by integrating a notification delivery mechanism.
- **OAuth-Based Authentication**: Architected and developed an API authentication system, leveraging OAuth for enhanced security and user authentication.
- **Fintech Data Analysis**: Leveraged statistical and deep learning algorithms for insightful fintech data analysis, driving data-driven decision-making processes.

Software Engineer, BJIT Inc., Tokyo, Japan Nov 2018 – Oct 2019
Tech Stack: Python, Django, Javascript

- **Bluetooth Connectivity**: Engineered a Bluetooth service for Android, enabling seamless connectivity with BLE devices.
- **Chatbot & Sentiment Analysis**: Developed a question-answering chatbot using Keras. Entrusted with the task of sentiment analysis on Japanese text, deciphering the meanings of various answers to enhance chatbot interactions.

PUBLICATIONS

🔗 [Google Scholar](#)

- [1] **[ICSE'24]¹ Md Mahbubur Rahman**, Ira Ceka, Chengzhi Mao, Saikat Chakraborty, Baishakhi Ray, Wei Le. "Towards Causal Deep Learning for Vulnerability Detection", In Proceedings of the 46th International Conference on Software Engineering, ICSE '24, Lisbon, Portugal, April 2024.
- [2] **[ICSE'23]¹ Benjamin Steenhoek, Md Mahbubur Rahman**, Richard Jiles, Wei Le. "An Empirical Study of Deep Learning Models for Vulnerability Detection", In Proceedings of the 45th International Conference on Software Engineering, ICSE '23, Melbourne, Australia, May 2023.
- [3] **[FICC'21] Md. Aktaruzzaman Pramanik, Md Mahbubur Rahman**, ASM Iftekhar Anam, Amin Ahsan Ali, Md Ashrafal Amin, A K M Mahbubur Rahman. "Modeling Traffic Congestion in Developing Countries using Google Maps Data", in Proc. of the Future of Information and Communication Conference, 2021.

AWARDS & ACHIEVEMENTS

Competitive Programming Excellence

- **1st Place out of 41 teams** - Jahangirnagar University Inter Dept. Programming Contest, Bangladesh (2017)
- **3rd Place out of 150 teams** - National Collegiate Programming Contest, Bangladesh (2017)
- **3rd Place out of 117 teams** - IUT 9th ICT FEST, Bangladesh (2017)

¹Top tier publications.

- **3rd Place out of 20 teams** - National Programming Camp, Bangladesh (2016)
- **5th Place out of 106 teams** - BUET CSE Day, Bangladesh (2016)

Online Problem Solving Achievements:

- **Codeforces** - Max rating 2021 (Top 1%), Username: mahbubcseju.
- **Codechef** - Max rating 2309 (Top 1%), Username: mahbubcseju.
- **Hackerrank** - Max rating 2345 (Top 1%), 13 gold medals, 11 silver medals, 6 bronze medals, Username: mahbubcseju.

PROFESSIONAL SERVICES

Coach, Competitive Programming, Iowa State University, Ames, IA Oct 2021 – May 2022

- Mentored a team that advanced to the 2022 ICPC North America Championship, demonstrating exceptional coaching and team-building skills.

Trainer and Manager, Programming Club, Jahangirnagar University, Savar, Dhaka, Bangladesh Mar 2017 – June 2018

- Led the programming club, providing training sessions and managing club activities to bolster the software development skills of members.

Campus Ambassador, GeeksforGeeks, Jahangirnagar University, Savar, Dhaka, Bangladesh Aug 2017 – Oct 2018

- Represented GeeksforGeeks on campus, organized events, and promoted learning resources among the student body.

Problem Setter, National and University-Level Programming Contests, Bangladesh Feb 2015 – Oct 2018

- Devised innovative programming challenges for the National Girls Collegiate Programming Contest to promote competitive coding among female students.
- Created and refined a diverse set of problems for the Intra University Programming Contests, enhancing the problem-solving skills and academic growth of fellow students.