

MD MAHIR ASEF KABIR, Ph.D. Candidate

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EDUCATION

Ph.D. Candidate, Department of Computer Science, Virginia Tech, USA

Aug 2019 — Present

MS, Department of Computer Science, Virginia Tech, USA

Aug 2019 — May 2024

BS, Department of Computer Science and Engineering, AUST, Bangladesh

Oct 2011 — Jan 2016

RELEVANT COURSES

- Software Engineering, System and Software Security, Formal Languages, Data Structures and Algorithms, Database, OOP

TECHNICAL SKILLS

- Programming Languages: C, C++, Python, Java, C#, JavaScript, PHP
- Libraries, Frameworks & Paradigms: .NET, Entity Framework, jQuery, Fabric.js, AWS Lambda, Google Cloud Functions
- Database and Messaging: MySQL, Microsoft SQL Server, MongoDB, RabbitMQ
- Tools and Source Controls: TFS, SVN, Git, Docker

INDUSTRY EXPERIENCES

Software Engineer, Enosis Solutions, Bangladesh

Nov 2015 — Aug 2019

Treeno Software (Document Management Software) | C#, ASP.NET MVC, MS SQL Server, .NET Core, RESTful APIs

- Created a new admin panel, using ASP.NET MVC, and MS SQL Server, providing an enhanced admin-user experience
- **Built a RESTful API-based backend**, using .NET Core, OAuth 2.0, and MS SQL Server, cutting down 60% lines of code
- Enhanced client application performance, using Dependency Injection and Generic Methods, reducing 50% API calls

Insightformation (Workflow Management Application) | C#, ASP.NET Web Forms, Fabric.js, Entity Framework

- Created a designing tool, using ASP.NET Web Forms and Fabric.js, allowing users to create and edit workflow diagrams
- Implemented the workflow page, using a Graph data structure, allowing users to manage different workflow components

Summer Intern, Green and Red Technologies (Ad Network), Bangladesh

May 2014 — July 2014

- Optimized data storage and retrieval technique, using MySQL, improving query operation time from ~5s to 0.042s.
- Developed intern page, using PHP and HTML, allowing interns to view and download their internship certificates

RESEARCH EXPERIENCES

Graduate Research Assistant, Virginia Tech, USA

Aug 2019 — Present

Detection of Java Projects' Metadata Related Bugs | JavaCC, Java, Static Program Analysis, Spring Boot

- **Created a domain-specific language**, using JavaCC, allowing domain-experts to write custom rules for checking bugs
- Developed a language engine, using Java and Static Program Analysis, providing a platform for running the custom rules
- Identified 15 bug patterns and discovered 156 bugs from 70 Java enterprise applications
- **Paper under review** at FSE 25

How Does LLMs Compare with Developers? | Java, Python, Git, ChatGPT, Llama, Mistral 7B, Bloom

- Evaluating open source LLMs' performance in revising code for software maintenance compared to software developers
- Investigated how well LLMs answer Stack Overflow questions compared to humans, observing better performance 75% time
- **Paper under review** at JSS

How Do NodeJS Developers Follow Security-relevant Best Practices | Python, Git, NodeJS

- Investigated how often NodeJS developers do not follow security-relevant best practices while maintaining NPM packages
- Evaluated the existing NPM tools' performances and found gap between necessity and available solution
- **Published a paper** in IEEE SecDev 22

How Well Existing Tools Detect Cryptographic API-misuses in Java projects | Java

- Evaluated the state of the art tools to find gap between developers' expectation and the tools' performances
- **Published a paper** in IEEE TSE 22

Detection and Repair of Security-API misuses in Java Code | Java, Static Program Analysis

- Created a tool SEADER to detect and repair security-API misuses in Java projects, outperforming existing tools
- **Published a paper** in IEEE/ACM ICPC 22

TEACHING EXPERIENCES

Lecturer (Part-Time), AUST, Bangladesh

2016 — 2018

- Courses Instructed: Algorithm Lab, Software Development with C (iGraphics)
- Instructed 100+ students

Lecturer (Part-Time), Southeast University, Bangladesh

2016 — 2018

- Courses Instructed: Java, Algorithm, Theory of Computation, Operating System
- Instructed 120+ students

MENTORSHIP EXPERIENCES

Enosis Solutions, Bangladesh

Nov 2015 — Aug 2019

- Led a team of 4 developers, reviewing code and helping with feature implementations, successfully finishing 2 projects
- Mentored 4 developers as part of a new-employee training program, successfully preparing them for 4 different teams

CODING COMPETITION ACHIEVEMENTS

- 5th in SUB Inter University Programming Contest 2016, Dhaka, Bangladesh
- 15th in National Collegiate Programming Contest (NCPC) at RUET, 2015, Rajshahi, Bangladesh
- 3rd in IUBAT Inter University Programming Contest 2014, Dhaka, Bangladesh

CLUB ACTIVITIES

Core Team Member, Google Developer Student Club at Virginia Tech

Feb 2022 — Apr 2023

- Worked as the Backend Lead to help teams participating in Solutions Challenge
- Organized 4 weekly coding challenges