MD MAHIR ASEF KABIR

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EXPERIENCE

Software Engineer, Enosis Solutions   Nov 2015 — Aug 2019

Project: Treeno Software

- Enhanced Treeno Document Management System, using .NET & jQuery, to create admin panel & user grouping
- Developed the Treeno API, using .NET Core and MS SQL Server to segregate backend code, resulting in a **60% reduction in lines of code**.
- Improved code quality of Treeno API, using Dependency Injection & Generic Methods, to **reduce server communication by 50%**
- Managed a team of 4 software engineers, by reviewing code & assisting with feature implementations

Project: Insightformation

- Built features of InsightVision workflow management application, using ASP.NET MVC, Entity Framework & Fabric.js, to **introduce** workflow diagram **designing tool**

Training Experience

- **Trained 4 new Software Engineers** the basics of ASP.NET MVC, to get them prepared for 4 different company projects

EDUCATION

Ph.D. Student, Department of Computer Science   Aug 2019 — (Expected) May 2024

Virginia Tech, Blacksburg, VA

- Research topic: Helping software developers maintain project configuration well so that they encounter fewer runtime and security issues
- Teaching Assistant for - Data Structures & Algorithm, Comparative Languages, Formal Languages
- Relevant courses - Advanced Software Engineering, System And Software Security, Software Project Management

BS, Department of Computer Science & Engineering   Oct 2011 — Jan 2016

Ahsanullah University of Science & Technology, Dhaka, Bangladesh

- Mentor & Trainer at Programming Contest Club for 3 semesters
- Active participant in 10+ Inter & Intra University Programming Contests
- Relevant courses - Algorithm, Data Structures, Digital Image Processing, Network Programming with Java, Software Development

CURRENT RESEARCH PROJECTS

Detection of Java Projects' Metadata Related Bugs

- Creating an external domain specic language from scratch (writing grammar syntax, generating parser, & developing language engine), using JavaCC & Java, to detect Java projects' metadata related bugs
- Discovered **15 different** metadata related **bug patterns** for Java Spring projects

How Does ChatGPT Compare with Developers?

- Investigating how well Large Language Models perform compared to developers in answering technical questions, and revising code
- Discovered ChatGPT's better performance in approximately **65% cases**
- Successfully merged and **built 90%** code maintainance related changes made by ChatGPT

PUBLISHED TECHNICAL RESEARCH PROJECTS

Usage investigation of NPM package-related best practices   Aug 2022

- Investigated how securely developers follow security related best practices for NPM packages
- Wrote all data-collection related scripts (web scraping & Git accessing) from scratch using Python
- Discovered vulnerable, unused, & duplicate packages in **55%**, **90%**, & **83%** of projects respectively
- Published a paper in IEEE SecDev 2022: https://ieeexplore.ieee.org/abstract/document/9973037

Detection & Repairment of Java security-API misuses   Mar 2022

- Worked on creating an Example-Based approach, using Java & WALA, to detect & repair security-API misuses for Java
- Created Pull Requests to communicate with developers for user studies
- Successfully detected vulnerabilities with **95% precision, 72% recall, and 82% F-score**
- Published a paper in ICPC 2022: https://dl.acm.org/doi/abs/10.1145/3524610.3527895

Performance analysis of tools for detecting cryptographic API misuses   Feb 2022

- Investigated how far existing tools have come to detect Java Cryptographic API misuses
- Collected GitHub data using Python script, and communicated with developers for user studies
- Discovered significant gap between the state-of-the-art tools and developers' expectations
- Published a paper in IEEE TSE 2022: https://ieeexplore.ieee.org/document/9711933

SKILLS

- Programming Languages: C, C++, Java, C#, JavaScript, Python
- Libraries & Frameworks: Entity Framework, jQuery, Fabric.js
- Database Management Systems: MySQL, Microsoft SQL Server
- Source Controls: TFS, SVN, Git

COMPETITIVE PROGRAMMING 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
- Used C++ & Java for problem solving with algorithms