

# SYEDA TASNIM FABIHA

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## Education

### University of Southern California (USC)

*Ph.D. in Computer Science (in progress); M.S. in Computer Science, May 2025 (GPA: 3.71/4.0)*

Aug 2022 – Present

### Institute of Information Technology, University of Dhaka

*B.S. in Software Engineering (BSSE) (GPA: 3.88/4.0)*

Dec 2017

## Technical Skills

**Programming Languages:** Python, C#, C, R, JavaScript, HTML/CSS

**Frameworks & Libraries:** ASP.NET, Angular, React, Bootstrap, Microsoft SharePoint, PyTorch, scikit-learn, TensorFlow, Pandas, NumPy

**Databases:** MySQL, SQL Server, MongoDB

**AI/ML Tools & Techniques:** Machine Learning, Deep Learning, Reinforcement Learning, Natural Language Processing (NLP), Large Language Models (LLMs)

**Technologies:** AWS, Git, Jira

## Research and Industry Experience

### University of Southern California

Aug 2022 – Present

*Research Assistant*

*Los Angeles, CA*

Conducting research at the intersection of software engineering and machine learning, with a focus on modernizing legacy systems into service-based architecture and evaluating deep learning-based vulnerability detectors:

- Built a reinforcement learning based framework for method-level service identification from legacy systems, balancing cohesion–coupling with business alignment using a customizable reward using Python, and achieved 7–14% higher modularization quality and 18–22% stronger business capability alignment compared to two state-of-the-art techniques. (Work under review)
- Co-developed Vulnerability Identification via Perturbations framework to evaluate whether DL detectors learn true vulnerability features vs. spurious cues; results included in [ICSE 2025](#).

### Brain Station 23

Jan 2017 – Jul 2022

*Senior Software Engineer*

*Dhaka, Bangladesh*

- Re-engineered the Intermodal Maintenance and Repair System (IMRS) for Kaleris, using **ASP.NET MVC, WCF REST, SQL Server, jQuery**. [\[imrs\]](#)
- Redesigned workflow, database schema, and existing features for IMRS, improving usability and performance by **20%**.
- Led a 3-engineer team and collaborated directly with the onshore team and stakeholders for developing to gather requirements, align deliverables, and ensure smooth cross-site communication.[\[imrs\]](#).
- Developed agency digitization solution for Metlife from scratch using **Web API, Angular 5, SQL Server**, streamlining recruitment process and improving onboarding time 60% faster. [\[Metlife AD\]](#)
- Automated build and deployment process using Azure DevOps CI/CD pipelines, ensuring faster and timely releases.
- Optimized SQL queries and refactored codebase, reducing initial load time to **70%** and improving performance by **30%**.
- Worked on improving the security of systems that cleared Veracode scans with zero critical/high findings, strengthening security compliance.
- Built a SharePoint-based Purchase Request Process for Japan Tobacco International, automating approval workflows and report generation using **SharePoint, React and PnP JS**.
- Created a mobile banking app for windows mobile using **WPF, MVVM, and XML**, named Citytouch, currently used by City Bank, a prominent bank of Bangladesh, having a large user base.
- Enhanced team capability by mentoring new engineers, designing recruitment assessments, and shortlisting candidates.

## Selected Academic and Open Source Projects

**XSSI Detector:** Developed a Chrome extension to detect dynamic JavaScript on Bangladeshi websites, analyzed Cross-Site Script Inclusion vulnerabilities, and proposed security countermeasures. [\[link\]](#)

**Stock Prediction:** Performed linear regression on Dhaka Stock Exchange data using R and compared with random forest, demonstrating superior accuracy and performance of the latter. [\[link\]](#)

## Awards, Certifications & Leadership

NSF Travel Awardee, ICSE Mentoring Workshop (2025).

USC Viterbi School of Engineering Ph.D. Fellowship (2022–2023)

PC Member, [SVM 2026 @ ICSE 2026](#)

**VP**, BDSA USC (2024); [WINCC Organizer](#); Viterbi Mentor ([cert](#)).

Certified Azure Fundamentals ([cert](#)); ACM Peer Reviewer ([cert](#)); HackerRank Angular ([cert](#)); SQL Gold ([badges](#)); Nat'l Hackathon 4th.