Setu Kumar Basak

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EDUCATION

North Carolina State University — North Carolina, USA
PhD in Computer Science — *Aug. 2021 – Dec. 2024 (Tentative)*

Khulna University Of Engineering & Technology — Khulna, Bangladesh
BSc in Computer Science — *Feb. 2012 – April 2016*

EXPERIENCE

Software Engineering Summer Intern — June 2024 – August 2024
Fidelity Investments — *Raleigh, North Carolina*
- Built a POC to migrate from Postgres and Aerospike to YugaByte, achieving 50% reduction query response time
- Integrated CodeQL for vulnerability scanning in the CI/CD pipeline
- Created REST APIs using Java Spring Boot for Stock Market portfolio risk analysis

Graduate Research Assistant- RealSearch Lab — May 2022 – Present
North Carolina State University — *Raleigh, North Carolina*
- Researched on finding technical challenges faced by developers for managing secret-containing software artifacts
- Conducted a study on finding best practices for secret management using Grey literature review
- Curated a benchmark dataset and compared secret detection tools to verify their effectiveness and efficiency
- Developed a risk-based software secret detection tool using pattern matching, data flow analysis, fast-approximation heuristics, and large language models

Teaching Assistant- Software Security — January 2022 – April 2022
North Carolina State University — *Raleigh, North Carolina*
- Assisted students to implement different security techniques such as SAST, DAST, SCA, and secret detection tools to find vulnerabilities in healthcare software, OpenMRS

Development Lead — March 2021 – August 2021
Enosis Solutions — *Dhaka, Bangladesh*
- Provided training to 10+ new team members and ensured ideal career growth of the developers
- Managed sprint planning, distributed tasks to team members and reported projected status to clients

Senior Software Engineer — March 2018 – February 2021
Enosis Solutions — *Dhaka, Bangladesh*
- Worked on a dental practice management software (Denticon) using ASP.NET, SQL Server, and Javascript
- Developed a mobile application for Denticon using Ionic and Angular framework
- Built an image and file upload service for Houselens using MongoDB, AWS S3, and AWS Lambda

Software Engineer — May 2016 – February 2018
Enosis Solutions — *Dhaka, Bangladesh*
- Developed an opportunity analysis model for Sentrana using Apache Spark, Redshift, and Play framework
- Developed a mobile application (OfferShare) for sharing food offers using Ionic and Firebase

TECHNICAL SKILLS

Languages: Python, JavaScript, C#, C++, Scala, QL, Java
Tools and Frameworks: SAST, DAST, IAST, ASP.NET, SQL Server, MongoDB, Apache Spark, JS frameworks
Research Methods: Empirical analysis, Security testing, Data-driven discovery and analytic, Software Repository Mining, Mixed-methods, Large Language Models, Natural Language Processing

SELECTED PUBLICATIONS

- What Challenges Do Developers Face About Checked-in Secrets in Software Artifacts? – (ICSE 2023)
- SecretBench: A Dataset of Software Secrets – (MSR 2023)
- A Comparative Study of Software Secrets Reporting by Secret Detection Tools – (ESEM 2023)
- Attackers reveal their arsenal: An investigation of adversarial techniques in CTI reports – (ACM TOPS 2024)
- AssetHarvester: A Static Analysis Tool to Detect Assets Protected by Software Secrets – (ICSE 2025)

Reference: Dr. Laurie Williams, Distinguished Professor, North Carolina State University; PhD advisor