Kanak Das

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EDUCATION

University of California, Riverside *Sep 2022 - Current*
PhD in Computer Science
Advisor: Manu Sridharan
Research areas: Programming Languages, Machine Learning, Software Engineering

Bangladesh University of Engineering and Technology *Feb 2015 - April 2019*
Bachelor of Science in *Computer Science and Engineering*
Advisor: Md. Shohrab Hossain

RESEARCH EXPERIENCE

University of California, Riverside *Sep 2022 – Current*
Graduate Research Assistant

- Developed a lightweight Taint Rule Type Checker on top of the Checker Framework, balancing soundness and practicality. Enhanced usability with type annotation inference and evaluated its effectiveness on large open-source Java programs. Achieved precision and recall comparable to state-of-the-art tools like CodeQL and Doop/PTaint, with significantly faster analysis times.
- Exploring the applicability of incremental abstract interpretation to neural network verification and interpretability using numerical domains like interval, zonotope, and polyhedra.

Bangladesh University of Engineering and Technology *Nov 2019 – May 2020*
Research Assistant (part-time)
Contributed to a project titled *Diving deep into the Security Testing of the Android Applications of Bangladesh*, funded by Bangladesh ICT Innovation Fund.

Bangladesh University of Engineering and Technology *June 2018 – April 2019*
Undergraduate Thesis
Built an Inter Component Communication(ICC) based Collusive Malware Analysis and Visualization Tool to demonstrate possible ICC based threats in Android apps.

PUBLICATIONS

Nima Karimipour, Kanak Das, Manu Sridharan, and Behnaz Hassanshahi. Practical Type-Based Taint Checking and Inference *(Under submission).*

Ajoy Das, Kanak Das, and Md. Shohrab Hossain. An Integrated Inspection and Visualization Tool for Accurate Android Collusive Malware Detection. *7th International Conference on Networking, Systems and Security (7th NSysS 2020)*, Dhaka, Bangladesh, December 2020.

WORK EXPERIENCE

OpenRefactory, Inc. *June 2019 – Aug 2022*

*Software Engineer***,** *Lead Software Engineer*

Worked on building developer tools using static analysis techniques. Developed and maintained Java checkers, integrated new technologies, and packaged products for various platforms. Key contributions include writing a checker for Java concurrency issues, bootstrapping static analysis frameworks for Python and TypeScript, improving serialization for better performance, converting core components to native code, and designing licensing schemes for multiple platforms.

TEACHING EXPERIENCE

University of California, Riverside

Teaching Assistant

Principles of Programming Languages *Fall 2023*

Advanced Software Testing and Analysis *Winter 2024*

HONORS

Outstanding Teaching Assistant Award | University of California, Riverside *2024*

Dean‘s Distinguished Fellowship | University of California, Riverside *2022*

National Champion | Bangladesh Chemistry Olympiad *2014*

ACTIVITIES

Attended Oregon Programming Languages Summer School 2024

Attended SPLASH’24 as Student Volunteer 2024