Nadeeshan De Silva

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Statement

I am a third-year Ph.D. candidate in Computer Science at William & Mary, where Dr. Oscar Chaparro advises me. I am passionate about utilizing {machine, deep} learning, and LLMs to address real-world software engineering challenges. I bring over two years of industry experience as a software engineer and more than three years of independent research experience. My current research aims to enhance automatic code comprehension for better code refactoring and enhance bug report management using multi-model LLMs.

Education

The College of William and Mary, Williamsburg, VA   Sep 2022 - present
  Ph.D. in Computer Science (GPA 4.00/4.00) | Advised by: Dr. Oscar Chaparro

University of Moratuwa, Sri Lanka   Feb 2016 - Jan 2020
  B.Sc. Engineering (Hons) in Computer Science & Engineering (GPA 3.53/4.20)

Publications

- **Nadeeshan De Silva**, Oscar Chaparro, Martin Kellogg. "Relative Code Comprehensibility Prediction"(under review)

- J Mahmud, **Nadeeshan De Silva**, S A Khan, S H Mostafa, S M Hasan Mansur, Oscar Chaparro, Andrian Marcus, and Kevin Moran. "On Using GUI Interaction Data to Improve Text Retrieval-based Bug Localization". *International Conference of Software Engineering (ICSE)* research track 2024 [pdf]

- Y Song, J Mahmud, **Nadeeshan De Silva**, Y Zhou, Oscar Chaparro, Kevin Moran, Andrian Marcus, and Denys Poshyvanyk. "BURT: A Chatbot for Interactive Bug Reporting" *International Conference of Software Engineering (ICSE)* 2023 tool demo track [pdf]

- 🏆(**Best Paper Award**) G Gamage, **Nadeeshan De Silva**, A Wickramarachchi, V Mallawaarachchi and I Perera "Alignment-free Whole Genome Comparison Using k-mer Forests" in *19th International Conference on Advances in ICT for Emerging Regions,* ICTer 2019 [pdf]

- Nuwan Bandara, **Nadeeshan De Silva,** Himasha Guruge "Increasing the Quality of Patient Care through Stream Processing" – White Paper 2019 In [infoQ]

Research & Industrial Experience

Graduate Research Assistant, William & Mary, VA, USA   Sep 2022- present
- Conducting machine learning experiments to investigate the effect of relative comprehensibility over absolute code comprehensibility. Obtained a relative improvement of up to 112.5% over the best baselines.
- Using multi-model Large Language Models to improve duplicate issue report detection in issue trackers.
- Investigated the effect of mobile GUI interaction data to improve text-retrieval-based bug localization.

Senior Software Engineer, Enactor, Sri Lanka (Branch of Enactor Limited, Hertford, UK)   Feb 2020 - July 2022
- Designed and implemented a customized React-based POS module for an enterprise-level client, delivering a more efficient and user-friendly interface.
- Enhanced platform code quality by 20% through systematic refactoring, resolving over 100 SonarQube-reported issues, leading to cleaner, maintainable, and efficient code.
- Engaged in various design, development, deployment, quality assurance, and customer support tasks.

Google Summer of Code Intern (Open-Source Project), The Apache Software Foundation, Remote   May 2019 – Aug 2019
- Designed and implemented modularized, reusable React components and Improved JAX-RS-REST APIs for Apache OODT 2.0. [project]

Software Engineer Intern, WSO2, Sri Lanka   June 2018 - Dec 2018
- Developed a prototype for a Healthcare Data manipulation that supports global HL7/FHIR standards.
  (Kafka/Zookeeper mechanism, stream processing-based data processing) and published a white paper in InfoQ [paper]

Skills

- Programming Languages: Python, Java, Bash, CUDA
- Operating Systems: Unix/Linux, MacOS
- Frameworks: Scikit-learn, PyTorch, Docker, React, Android

Achievements

Received International Student Opportunity Scholarship from William and Mary, VA, USA	2024
Received ACM SIGSOFT travel grant to attend the International Conference on Software Engineering (ICSE).	2024
Recognized for academic excellence on graduating with SGPA 3.98 /4.2 with an A+ for the bachelor's Thesis project.	2020
The Best Paper Award at the International Conference on Advances in ICT for Emerging Regions(ICTer)	2019
World Rank 330/7000+ - Deng AI-Driven Data competition	2019
Sri Lankan Finalists – TAD Hack (Computer Vision based application to convert handwriting to PDF near real-time)	2017

Professional Qualifications/Activities

- Presented my research at the International Conference on Software Engineering (ICSE)   April 2024
- Volunteer ESSEC (Eastern Atlantic Students in Software Engineering Colloquium), William & Mary, Williamsburg, VA.   Jan 2024
- Student Volunteer ICSME (The International Conference on Software Maintenance and Evolution)   Oct 2023
- Mentor and Judge @ Cypher VIII Hackathon at William and Mary, Williamsburg, VA   Oct 2022, Nov 2023
- Appointed as Apache OODT Project Management Committee (PMC) Member and Committer.   April 2021