

Kabilan Mahathevan

Computer Science PhD Student

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Profile

Passionate about advancing technology and contributing to societal progress, I am an enthusiastic Computer Science and Engineering professional with a keen interest in High-Performance Computing, Programming Languages & Compilers, Program Analysis and Computer Systems. My dedication lies in optimizing software to enhance computational performance within existing hardware constraints. With a strong drive for learning and adaptation, I am committed to leveraging my skills to make meaningful contributions in these dynamic fields.

Areas of Interest & Expertise

High Performance Computing - Programming Languages & Compilers - Program Analysis - Computer Systems - Machine Learning & Artificial Intelligence

Education

PhD Computer Science (*Virginia Tech*)

Blacksburg VA, USA 2025-present

- Advised by Prof. Kirshanthan Sundararajah.

BSc Computer Science and Engineering (*University of Moratuwa*)

Colombo, Sri Lanka 2019-2024

- CGPA: **3.92/4.2** (First Class)
- Dean's List Semesters: 7/8
- Batch Representative for 5th and 6th Semesters.

G.C.E Advanced Level (V/Vavuniya Tamil Madhya Maha Vidyalayam)

Vavuniya, Sri Lanka 2016-2018

- Merit Pass - Physical Science Stream
- Z-Score: **1.9835**
- National Rank: **557/32,304** (Top 1.7%)
- Received Mahapola scholarship to complete undergraduate studies.

Research Experience

Visiting Research Scholar (*TEST Lab, NUS*)

Singapore 09/2024 - 05/2025

- Worked with Prof. Manuel Rigger in increasing the performance of the mutation testing for SQL queries and dialect-agnostic AST for SQL queries using LLMs.

Fuzzing Cloud PaaS Systems (*University of Moratuwa*)

Colombo, Sri Lanka 07/2023 - 06/2024

- Developed a specialized fuzzing technique to systematically uncover **reconciliation bugs** within **Kubernetes**, as a vital component of my undergraduate final year project. The empirical data on the reconciliation bug in Kubernetes has been accepted to **APSEC 2024**.
- Advisors: Dr. Sunimal Rathnayake & Dr. Ridwan Shariffdeen

Professional Experience

Software Engineer (*Sysco LABS*)

Colombo, Sri Lanka 06/2024 - 09/2024

- Worked on a competition organizing and judging platform from backend to frontend.
- Implemented the unit test suite, regression testing, UI functional testing suite, and the relevant CI pipeline.

Teaching Assistant (*University of Moratuwa*)

Colombo, Sri Lanka 07/2023 - 06/2024

- CS3063 - Theory of Computing**, under Prof. Sanath Jayasena.
- CS2043 - Operating Systems**, under Dr. Buddhika Karunaratne and Ms. Vishaka Nanayakkara.

- Material Created: Docker Container Created for Evaluation Purpose of **Pintos** Project: kabilanmahathevan/pintos.

- **CS3043 Database System**, under Dr. Sapumal Ahangama.

Software Development Engineer Intern (*The Software Practice*) **Cecil Court, Singapore** 01/2023 - 06/2023

- Worked on **LEAP** project for Building And Construction Authority (**BCA**), Singapore.
- Worked with the front-end team to create a better and user-friendly interface.
- Created the entire Regression Testing Suite for the project under **Tony Tieu Ha Phong**.

Services

Artifact Reviewer

- 23rd USENIX Conference on File and Storage Technologies [**FAST'25**]

Google Summer of Code

- Mentored SQLancer Project in GSoC 2025

Skills

- C++
- Java
- JavaScript
- \LaTeX
- Python
- Haskell
- Git & GitHub

Languages

- **English** [Fluent]
- **Tamil** [Native]

Extra-curricular Activities

Volunteered teaching work for under-privileged remote areas.

01/2019 - 01/2022

- Volunteered in All University Student Development Association - Vavuniya (AUSDAV)
- Teaching secondary school classes to underprivileged students from remote areas.
- Conducting annual evaluation exam of GCE A/L in the northern province.

Badminton

08/2010 - 12/2014

- Two times (2012, 2013) Provincial Level (Northern Province) Champion.

References

Dr. Sunimal Rathnayake

PhD (NUS), BSc Eng (Hons) (Moratuwa)
Senior Lecturer,
Dept. of Computer Science and Engineering,
University of Moratuwa,
Sri Lanka.
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Dr. Ridwan Shariffdeen

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