

# Kabilan Mahathevan

Computer Science Engineer & Researcher

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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

- 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

**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 final year project. The empirical data on the reconciliation bug in Kubernetes has been accepted to **APSEC 2024**.

Supervisors:

- Dr. Sunimal Rathnayake
- Dr. Ridwan Shariffdeen

**Visiting Research Scholar** (*TEST Lab, NUS*) **Singapore** 09/2024 - present

- Working with Prof. Manuel Rigger in increasing the performance of the mutation testing for SQL queries.

## 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.
- Supervised and mentored by Isuru Mohottala and Nishantha Hettiarachchi.

**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 Karunarathne 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

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### Artifact Reviewer

11/2024

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

## Projects

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### P2P Torrent Client

01/2023 - 06/2023

- Developed a custom **Torrent Client** to address adware concerns, ensuring a clean and personalized downloading experience. Required expertise in networking principles and BitTorrent system. Successfully delivered ad-free downloads, with potential for enhancements such as magnet link support.  
Repository: KabilanMA/p2p-torrent-client

### Workflow Management System (*Test Deployment*)

**Galle Irrigation Dept., Sri Lanka** 09/2023 - 12/2023

- Developed a workflow management system to prioritize and automate the traditional paperwork system of **Galle Irrigation Department, Sri Lanka**.  
Repository: KabilanMA/workflow-management-system-frontend  
Supervisor: **Dr. Gayashan Amarasinghe**

Other project details can be found in my GitHub profile.

## Skills

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- C++
- Java
- JavaScript
- $\LaTeX$
- Python
- Go
- Git & GitHub

## Languages

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

## Extra-curricular Activities

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### 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

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### Dr. Sunimal Rathnayake

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### Dr. Ridwan Shariffdeen

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