

THAMISH WANDURAGALA

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ABOUT ME

My research interests lie in developing hardware-software systems to address real-world scenarios by designing, optimizing, and implementing innovative solutions.

EDUCATION

University of Peradeniya, Sri Lanka 2019 November - 2024 August

- Bachelor of the Science of Engineering Honours in Computer Engineering GPA: 3.95/4.00

Trinity College, Kandy, Sri Lanka 2004 - 2018

- G.C.E. Advanced Level (2018) - 2As, 1B in Physical Science Stream.
- G.C.E. Ordinary Level (2015) - 8As, 1B (English Literature)

EXPERIENCE

Temporary Instructor 2024 October - Present

- Department of Computer Engineering, Faculty of Engineering, University of Peradeniya.

Visiting Research Assistant 2023 August - 2024 January

- Supervised by Prof. Yuen Chau at Engineering Product Development Pillar, Singapore University of Technology and Design (SUTD).
- Contributed to a 6G Research and Development Project based on developing Wireless Communication Devices in collaboration with Nanyang Technological University (NTU).

Casual Instructor 2022 October - 2024 August

- Supervised weekly sessions for 2nd, 3rd year undergraduates of Department of Computer Engineering, University of Peradeniya for course modules,
 - * Operating Systems, Signal Processing, Programming Methodology (Based on C Programming Language), Digital Design (Based on circuit building.)

Voluntary 2020 May - Present

- Project Nenathambara

Contributed to making a new syllabus for Python programming language beginners and delivered the content to students in schools in Sri Lanka.

PROJECTS

Neuromorphic Architecture for Spiking Neural Networks (Group) | Verilog 2023 December - Present

- A neuromorphic accelerator architecture that is designed to run smaller scale Spiking Neural Networks (SNNs), using a network of nodes optimised for high speeds and low power consumption.
- The accelerator was supported by a RISC-V CPU accommodating general purpose tasks and custom interfacing for the accelerator.
- The synchronous accelerator supported 32-bit arithmetic operations, enhancing the inferencing capabilities of the SNN. Testing was conducted on an Altera FPGA, and performance was evaluated using Synopsys tools, including PrimePower and PrimeTime.
- Contributed to designing the architecture and testing its performance.

Automated Road-Rule Detector (Group) | Python, Flutter, Firebase, Nodejs 2022 October - 2023 January

- A hardware device based on Raspberry Pi 3 as the microprocessor which is able to detect road rule breaking severity with an app to visualize collected data.
- Contributed to the Front-End and Hardware.

2-bit Intelligent Reflective Surface Prototype (Group) | Python, Matlab 2023 August - 2024 January

- A 6G Wireless Communication research project focused on Intelligent Reflective Surfaces (IRS).
- Contributed to making the hardware controller of the IRS.

8-bit Single Cycle Processor (Group) | Verilog 2021 November - 2022 March

- An 8-bit single cycle processor with an ALU, register file, control logic, data memory, data cache, instruction memory and instruction cache. A memory hierarchy too was built.

ML-based Patient Diagnosis/Care (Group) | Python, Nodejs, Flutter 2023 May - Present

- An app designed to get symptoms from a user and provide insights and suggestions on potential risks, recommended eating habits and recommendations on type of medical doctor to visit.
- Contributed to the Machine Learning model and the Back-End.

Student Results Management System (Group) | Java, Android Studio 2021 November - 2022 March

- An application developed for undergraduates to keep track of their academic performance, progress.
- Contributed to the Back-End of the system.

Smart Inventory Management System (Group) | Laravel with php, blade, MYSQL 2022 May - August

- Introduced a resource scheduling system to manage resources in the MakerSpace Lab (Department of Computer Engineering, University of Peradeniya).

Database System at University Gymnasium (Group) | MySQL, Php 2021 November - 2022 March

- A fully functional database to organize reservations, cancellations, borrowings and misplacements of equipment at the university gym.

ACHIEVEMENTS / EXTRACURRICULAR

Global Robotics Games (Group) November 2023

- * 1st place in University Category - Three day competition based on developing robotic controllers for Transformer Robot Soccer League.

Aces Hackathon 2023 (Group) June 2023

- * 2nd place in "Other" category - Two day competition with 40+ participating teams.

Aces Pre-Coders 2022 (Group) August 2021

- * Finalists - A 6 hour coding competition with 70+ participating teams.

Offices Held

- * President, Ceylon University Dramatic Society, University of Peradeniya. (2022-2023)
- * Secretary, Aviation Society, Trinity College, Kandy. (2017-2018)

Sports

- * Baseball Under 19, 17, 15, 13 - Trinity College, Kandy. (2011 - 2017)

SKILLS

Hardware Programming: Verilog, ARM Assembly, Quartus, Primetime

Programming Languages: Python, Java, C, C#

Mobile Development: Flutter, Native Android

Front End: HTML/CSS, Bootstrap

Back End: Spring Boot, Nodejs

Data Modeling: Numpy, Pandas, scipy, sklearn

Databases: MySQL, FireBase

Version Controlling: Git

REFEREES

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