Thuvaragan **Sooriyakumaran**

Engineering Undergrad · Designer · Developer

thuvaragan28@gmail.com thuvasooriya thuvasooriya @thuvasooriya Last updated: 2025-11-04

From planet earth, loves to integrate art, science and technology to create a smile in the face of others. Moderate experience in systems programming, robotics, digital design, algorithms, and performance optimization.

Complimentary experience in web development, cross-platform app development, audio manipulation, and graphics manipulation. Currently obsessed with modular robotics, RISC-V IP design, open-source toolchains, and devops of corresponding workflows.

Projects

Qwen3-0.6B inference pipeline on custom RV32IM core in FPGA

thuvasooriya/ip_gemma

DVCON 25 - India: 1st Runner's Up — May 2025 - Sep 2025

- Research and Implementation project for DVCON25 to design a novel resource efficient accelerator IP for a custom RV32IM core
- Ran whole inference pipeline of Qwen3-0.6B with Q8 quantization and custom token embeddings

ViT Accelerator IP for a custom RISC-V core in FPGA

thuvasooriya/vit-malware-detector

DVCON 24 - India — May 2024 - Sep 2024

- Research and Implementation project for DVCON24 to design a novel ViT accelerator IP for a custom RISC-V core
- Selected in the 20 teams from >100 teams in Stage 1

Image segmentation research and evaluation for bin-picking

mora-bprs/sam-model

Semester 4 group project — March 2024 - June 2024

- Extensive literary review and recreation of image segmentation and CNN model papers in python
- Development of simple gripper mechanism and associated PCB for testing
- Extensive testing, benchmarking and documentation

Smart plug product research and development

thuvasooriya/pluggu

Semester 2 group project, Short course group project — Mar 2023 - May 2023

- Smart plug with remote control through LAN and WAN, developed around ESP32-S3 micro controller
- Another smart plug design and implementation was followed as part of a short course

STM32 two-wheeled line follower robot with simple manipulator

team-itro/sem3slrc

Semester 3 group project — Aug 2023 - Dec 2023

- Prototyped, designed and implemented a robot that is capable of following white, colored lines
- Custom arm mechanism was designed and integrated to achieve required object manipulation

Portable doctor companion device with SBC

biosense-ai/biosense-ai-web-server

Mecha 23 - 2nd Runner Up — Aug 2023 - Oct 2023

- Integrating ECG monitor and SpO_2 sensor with machine learning to make screening process easier for doctors
- Orange-Pi Zero 2W SBC is used with custom Linux to integrate monitoring, web-server and prediction algorithms

Maze Solving Micromouse

team-itro/kitro

RoboFest 24 — Sep 2024 - Dec 2024

- Maze Solving micromouse using STM32F411 microcontroller.
- Participated in RoboFest 24, Research on 2^{nd} prototype ongoing.

Analog ECG monitor PCB development

Semester 3 group project — Aug 2023 - Oct 2023

Semester 5 Group Projects

Demonstrated as per corresponding modules — Sep 2024 - Dec 2024

- RISC-V RV32I pipeline-processor research and implementation
- Single Precision FPU IP research and implementation
- Robot manipulator with 4 DOF

Semester 7 Group Projects

In Progress as per module requirements — Sep 2025 - Present

- ROS2 Labs and cross-platform testing
- BitSerial Bus implementation with 3 masters and 3 slaves
- MNIST Co-Processor-Accelerator IP implementation
- Promoter Analysis

Skills

Programming C/C++, **System{Verilog}**, **Python**, **TypeScript**, **Zig**, Rust, Lua, Nix

Languages **English**, **Tamil**, Sinhala, Japanese, French

Tools **KiCAD / Altium Designer**, **Vivado / Verilator**, **ROS**, SolidWorks, MATLAB

Achievements

Lead **Deputy Batch Representative**, Engineering Faculty, University of Moratuwa,
Senior(Head) Prefect, 2020, Jaffna Hindu College

Awards **Right To Information Act, National Debate - 1st Place**, Tamil, Team Lead,
All Island Senior Dialog Drama - 3rd Place

Education

BSc. in Engineering - Electronics and Telecommunication — Colombo, SriLanka
University of Moratuwa | Current CGPA - 3.715 — 2021 - Present

Charted Global Management Accounting (CGMA) — Colombo, SriLanka
Achievers Lanka | Certificate Level Completed — 2021 - Present

Embedded Product Design for IoT — Colombo, SriLanka
Short course by ENTC department UoM with Skillsurf.lk — Aug 2023 - Nov 2023

- PCB design, firmware development, enclosure design in OnShape, end 2 end connectivity in web dashboard

System {Verilog} for ASIC/FPGA Design & Simulation — Colombo, SriLanka
Short course by ENTC department UoM with Skillsurf.lk — Jan 2023 - May 2023

- Assignment 3 - ASIC flow report for MVM UART using SAED 32nm EDK & Synopsys design compiler
- Assignment 4 - FPGA implementation and demo of MVM UART

Full Stack Web Development (MERN Stack) — Jaffna, SriLanka
Uki Coding School - Digital Cohort 1 — Feb 2021 - July 2021

Secondary Education — Jaffna, SriLanka
Jaffna Hindu College | G.C.E. OL - 9A | G.C.E. AL - 3A — 2011 - 2020

Experience

Research Assistant - Internship — Remote - Singapore
School of Computer Science and Engineering (SCSE), NTU — 2024 Dec - 2025 Jul

- C99 Bundle adjustment implementation
- Implementation and comparision of QEMU, LiteX-Sim, Chipyard, and ZCU-102 compilation and workflows
- Literary review of Vector processing options for Rocket core
- ARM core and Rocket core shared memory implementation of SLAM workflow

Junior Graphic Designer — Jaffna, SriLanka
Mathi Colours Printers — 2020 - 2021

Digital Marketing Assistant — Jaffna, SriLanka
Ecosteem Pvt. Ltd. — 2021

References

Dr. Ranga Rodrigo — ranga@uom.lk
B.Sc. Eng. Hons. (Moratuwa), M.E.Sc. (Western, Canada), Ph.D. (Western, Canada), SMIEEE
Senior Lecturer, University of Moratuwa

Senthilmaran Ratnam — senthilmaran@gmail.com
Principal, Jaffna Hindu College | LLB Law Hons.