

# Thuvaragan Sooriyakumaran

ENGINEERING UNDERGRAD · DESIGNER · DEVELOPER

✉ thuvaragan28@gmail.com 🌐 thuvasooriya 🌐 thuvasooriya 📧 @thuvasooriya

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<sub>2</sub> 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<sup>nd</sup> 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 Languages

Tools
- C/C++, System{Verilog}, Python, TypeScript, Zig, Rust, Lua, Nix

English, Tamil, Sinhala, Japanese, French

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

Achievements

- Lead

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

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

Education

<b>BSc. in Engineering - Electronics and Telecommunication</b>	Colombo, SriLanka
UNIVERSITY OF MORATUWA   CURRENT CGPA - 3.715	2021 - Present
<b>Charted Global Management Accounting (CGMA)</b>	Colombo, SriLanka
ACHIEVERS LANKA   CERTIFICATE LEVEL COMPLETED	2021 - Present
<b>Embedded Product Design for IoT</b>	Colombo, SriLanka
SHORT COURSE BY ENTC DEPARTMENT UOM WITH SKILLSURF.LK	Aug 2023 - Nov 2023
<ul style="list-style-type: none"><li>PCB design, firmware development, enclosure design in OnShape, end 2 end connectivity in web dashboard</li></ul>	
<b>System {Verilog} for ASIC/FPGA Design &amp; Simulation</b>	Colombo, SriLanka
SHORT COURSE BY ENTC DEPARTMENT UOM WITH SKILLSURF.LK	Jan 2023 - May 2023
<ul style="list-style-type: none"><li>Assignment 3 - ASIC flow report for MVM UART using SAED 32nm EDK &amp; Synopsys design compiler</li><li>Assignment 4 - FPGA implementation and demo of MVM UART</li></ul>	
<b>Full Stack Web Development (MERN Stack)</b>	Jaffna, SriLanka
UKI CODING SCHOOL - DIGITAL COHORT 1	Feb 2021 - July 2021
<b>Secondary Education</b>	Jaffna, SriLanka
JAFFNA HINDU COLLEGE   G.C.E. OL - 9A   G.C.E. AL - 3A	2011 - 2020

Experience

<b>Research Assistant - Internship</b>	Remote - Singapore
SCHOOL OF COMPUTER SCIENCE AND ENGINEERING (SCSE), NTU	2024 Dec - 2025 Jul
<ul style="list-style-type: none"><li>C99 Bundle adjustment implementation</li><li>Implementation and comparision of QEMU, LiteX-Sim, Chipyard, and ZCU-102 compilation and workflows</li><li>Literary review of Vector processing options for Rocket core</li><li>ARM core and Rocket core shared memory implementation of SLAM workflow</li></ul>	
<b>Junior Graphic Designer</b>	Jaffna, SriLanka
MATHI COLOURS PRINTERS	2020 - 2021
<b>Digital Marketing Assistant</b>	Jaffna, SriLanka
ECOSTEEM PVT. LTD.	2021

References

<b>Dr. Ranga Rodrigo</b>	ranga@uom.lk
B.Sc. ENG. HONS. (MORATUWA), M.E.SC. (WESTERN, CANADA), PH.D. (WESTERN, CANADA), SMIEEE	
SENIOR LECTURER, UNIVERSITY OF MORATUWA	
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PRINCIPAL, JAFFNA HINDU COLLEGE   LLB LAW HONS.	