Thuvaragan Sooriyakumaran

Engineering Undergrad · Designer · Developer

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A simple human from planet earth, who loves to integrate art, science and technology to create a smile in the face of others. Have moderate experience with graphic manipulation, web development, low level programming, robotics, digital design and performance optimization. Currently obsessed with RISC-V and open-source digital-design tool-chains.

Projects

ViT Accelerator IP for a custom RISC-V core in FPGA
⬤ thuvasooriya/vit-malware-detector

DVCON 24 - India   May 2024 - Present

- 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, Stage 2a work ongoing…

RISC-V RV32I pipeline-processor research and implementation

Semester 5 group project   Jul 2024 - Present

Robot manipulator with 4 DOF

Semester 5 group project   Jul 2024 - Present

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

Portable doctor companion
⬤ 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 provide helpful information in a web dashboard in any device 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

Multi-modal analysis of ECG, heart sounds and lung sounds
⬤ biosense-ai/model-xai

Brainstorm 24   Mar 2024 - Present

- Continuation of the portable screening device, focusing on the prediction of the model
- Validation of results using back propagation to identify decisive sections

Analog ECG Monitor Development

Semester 3 group project   Aug 2023 - Oct 2023

Smart plug 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

Two wheeled drive robot
⬤ 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

Skills

Programming	C, **System{Verilog}**, **Python**, **JavaScript**, C++, Zig, Lua, Nix
Languages	**English**, **Tamil**, Sinhala, Japanese, French
Programs	**KiCAD / Altium Designer**, SolidWorks, MATLAB, LT Spice, Verilator

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 2021 - Present

Charted Global Management Accounting (CGMA) Colombo, SriLanka
Achievers Lanka | Level 1 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

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

Experience

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

- Flyer creation and editing
- Graphic manipulation
- Magazines and books compilation and editing

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

- Social media content creation and moderation
- Product modeling and marketing image generation
- Banner designs

References

Sayanthi. R sayanthiselvarasa@gmail.com
Assoiate Lecturer, Uki Coding School

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