WARREN SAMUELSON JAYAKUMAR

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Objective

I would like to leverage my skills in the field of Electronic and Telecommunication engineering and come up with innovations to solve problems faced by the people. I am passionate about hardware accelerator design for the field of Artificial Intelligence and other domain specific hardware accelerators.

Education

University of Moratuwa **2022 – 2026 (Ongoing)**
Bachelor of the Science of Engineering (Hons.) *Electronic and Telecommunication Engineering: GPA-3.92/4.00*

Wesley College, Colombo **2006 – 2020**
2020 G.C.E. A/L *Z-score:2.7040 Result: 3A's*

Wesley College, Colombo **2006 – 2020**
2017 G.C.E. O/L *Result: 9A's*

Technical Skills

Programming Skills: Python, C, C++, JavaScript, MATLAB, SystemVerilog
Languages: Fluent in English, Tamil and Sinhalese. Basic understanding of Chinese
Software & Tools:
Microcontroller Programming - STM32, Arduino
Machine Learning - Pytorch, LangGraph, LangChain
PCB designing - Altium Designer
Enclosure designing - Solidworks, Fusion 360
Electronic circuit design and simulation - Multisim, LTspice
FPGA programming - AMD Vivado, AMD Vitis, Quartus Prime
Graphic Designing - Adobe Creative Software

Experience

PE Plus (Pvt.) Ltd. **March 2021 – February 2022**
Engineering Trainee *Ekala*

- Prepared maintenance schedules for all machines in the factory
- Co-ordinated maintenance activities
- Co-ordinated with production team to monitor factory efficiency

London Stock Exchange Group **December 2024 – May 2025**
Engineering Intern *M.I.T Malabe*

- Member of the Software team
- Finetuned language models for estimating effort using story points
- Developed a comprehensive suite for testing various databases

Projects

Agentic AI for RF systems July 2025 – present
Currently co-designing and producing an agentic AI system to control RF chains at a hardware level. Although AI has seen many advances in telecommunication, it's use in the physical layer is still very limited. This project plans to bridge this gap and bring AI to the physical layer. I am developing the AI workflow and implementing it.

SuperStart 1.0 March – August 2023
Co-designed and produced a vehicle jump starter using supercapacitors. This involved an analog circuit design for charging the capacitors as well as discharging them into the vehicle battery. I gained skills such as analog circuit design, PCB design using Altium designer, enclosure design using SolidWorks, soldering, component selection and microcontroller programming.

Analog Solar Tracker July – November 2023

Co-designed and produced a solar tracker using only analog components. The main focus on this project was to enhance my knowledge and expertise in PID control. Additionally, I enhanced my knowledge on PCB and enclosure design.

Robot Design July – November 2023

Co-designed and produced a robot as part of the EN-3533 Robot design and competition module in the third semester of my degree program. During this, I was able to gain a deep understanding of sensors in robots, actuators and robot programming.

Battery Profiler July – November 2023

Co-designed and produced a battery profiler. This device is capable of discharging a battery at constant current or power, measuring the voltage and plotting the discharge curve. I gained a good understanding in power electronics, analog circuit design, specifically power electronics, UI design and further enhanced my knowledge on PCB design and enclosure design.

SIMD processor for accelerating a convolutional neural newtork October 2025 – December 2025

I was part of a team of four that designed a SIMD processor for accelerating a convolutional neural network. We developed the ISA, microarchitecture and the individual components. I was responsible for the model development, quantization and developing the convolution accelerator.

RISC V Singe Cycle Processor Design July 2024 – January 2025

Designed a RISC-V single cycle processor using SystemVerilog. The processor is capable of performing R,U,I,S,J, and SB type instructions of the RV32I instruction set

RISC V Pipelined Processor Design July 2024 – January 2025

Designed a RISC-V pipelined processor using SystemVerilog. The processor is capable of performing R,U,I,S,J, and SB type instructions of the RV32I instruction set

Floating Point Unit Design July 2024 – January 2025

Designed a floating point unit using system verilog. The FPU can handle additions, subtractions, multiplications and divisions.

Competitions

SLRC 2024 March 2024

Co-designed an autonomous robot for the Sri Lankan Robotics Challenge 2024. The capabilities of the robot included line following, colour detection, object detection based on shape and aiming and throwing a ball into a target. Our team was able to successfully qualify to the finals

ComFix 2024 March 2024 – July 2024

I was part of a team of three that took part in the Comfix Challenge organized by the IEEE Communications society of the university of Moratuwa. As part of this competition, our team proposed an Autonomous Traffic Management System designed using machine vision and communication capabilities. We were able to qualify for the finals in the competition.

DVCON Design Competition 2024 April 2024 – August 2024

I was part of a team of three that took part in the DVCON design competition in 2024. Our task was to design an accelerator for inference using a vision transformer. Out team was able to qualify for the second stage of the competition.

Professional Qualifications

CIMA Dip. MA **July 2023**

- AICPA & CIMA

CIMA Cert. BA. **June 2022**

- AICPA & CIMA

Dip.LCM **December 2022**

- London College of Music

Associate of the London College of Music **April 2024**

- London College of Music

Volunteer Activities

Book Donation Campaign **January 2018**

- I was able to organize a book donation campaign in a rural part of my country. We were able to donate over 2000 books to a poor school.

Voice Donation Campaign **May 2023**

- I was part of a campaign to convert books in text format to audio format. This project was aimed at generating educational content for blind students.

EXMO 2023 **July 2023**

- I was a department facilitator for ENTC in EXMO 2023. This was an exhibition focused on showcasing history and modern trends in the engineering field to the general public.

SLRC 2024 **March 2024**

- I was a member of the organizing committee of the Sri Lanka Robotics Challenge 2024, organized by the department of Electronic and Telecommunication Engineering. As part of this role, I was assigned the task of organizing the announcements and commentary. Additionally, I took part in the announcing and additionally, wrote scripts for the event.

E-Care 2024 **May 2024**

- I was a member of the organizing committee of E-Care 2024, which is the department's largest annual charity event. In my role, I was tasked with obtaining books from donors to donate to a rural school.

MoraForesight2.0 **September 2024**

- I was a member of the editorial team of MoraForesight2.0, an event where modern skills such as AI, IoT, entrepreneurship, robotics and programming are thought to school students.

Scholarships

Grade 5 Scholarship Examination

- Conducted by the Department of Examinations, Sri Lanka
- Obtained 171 out of 200

Extra Curricular Activities

- Department representative of Electronic and Telecommunication engineering department for semesters 7 & 8
- Graphic coordinator at the Electronic club of the University of Moratuwa
- Graphic designer at the Electronic club of the University of Moratuwa
- Member of the Board of Editors of the Electronic Club of the University of Moratuwa
- Member of the Rotaract club of the University of Moratuwa
- Member of the Gavel club of the University of Moratuwa
- Christian Social Responsibility Coordinator – Student Christian Movement – Wesley College
- Secretary of the Library Union – Wesley College
- Member of the Badminton squad - Wesley College
- Chorister – Welsey College
- Scouting – Wesley College

Certifications

Foundations & Computer Science

- Harvard CS50: Introduction to Computer Science
- CS50's Introduction to Artificial Intelligence with Python

FPGA, HDL & Embedded Systems

- Introduction to FPGA Design for Embedded Systems
- Hardware Description Languages for FPGA Design

Machine Learning & Deep Learning

- Machine Learning Specialization
- Deep Learning Specialization
- Supervised Machine Learning: Regression and Classification
- Advanced Learning Algorithms
- Unsupervised Learning, Recommenders, and Reinforcement Learning
- Neural Networks and Deep Learning
- Improving Deep Neural Networks
- Structuring Machine Learning Projects
- Convolutional Neural Networks
- Sequence Models

Computer Vision

- OpenCV Bootcamp

Web & Software Development

- JavaScript Algorithms and Data Structures
- Responsive Web Design

MATLAB & Simulation

- MATLAB Onramp
- Simscape Onramp

AI Security & Generative Models

- Exploring Adversarial Machine Learning
- Generative AI with Diffusion Models

References

1. **Dr.Chamira U. S. Edussooriya**
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2. **Dr.Ranga Rodrigo**
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