IMESH BALASURIYA

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PROFILE

A final-year computer engineering undergraduate with a passion for problem solving, and a strong interest in Computer Architecture and Compilers.

SKILLS

Programming Languages
C, Java, Ballerina, Python

Hardware Programming
Verilog HDL, AVR C, ARM Assembly, RISC-V Assembly

Web Development
HTML/CSS, JavaScript/TypeScript, Node, React, Express

DBMS
SQL, MongoDB

Developer Tools
Linux (Bash shell), Git, Cloud Service Platforms (AWS, GCP, Azure)

Libraries
OpenCV, NumPy, Matplotlib

EDUCATION

BSc. Eng.(Hons.) Computer Engineering (Reading)

University of Peradeniya Nov 2018 - Present

Current GPA: 3.80/4.00

EXPERIENCE

Casual Instructor (Teaching Assistant) 2021 - Present

Faculty of Engineering, University of Peradeniya

Involved in conducting lab sessions for undergraduates at the Department of Computer Engineering under the following courses.

- Digital Design
- Computer Architecture
- Computer Communication Networks II
- Computer and Network Security

Intern - Software Engineer 2022 Dec - 2023 May

WSO2

Responsible for the development of two engineering automation tools for performing sanity checks on the WSO2 GitHub organisations and automating the GitHub repository creation process.

Open Source Contributor

Ballerina

Contributed to the development of connectors for the Ballerina open source programming language.

GitHub PRs:

- [ballerina-platform/module-ballerinax-github#278]
- [ballerina-platform/module-ballerina-uuid#443]

PROJECTS

Neuromorphic NoC Architecture for Simulating SNNs 2023 - Present

Verilog, Quartus Prime

Group |

Designing a novel neuromorphic network-on-chip architecture based on the RISC-V ISA for the simulation of spiking neural networks and implementation of the design on an Intel FPGA.

QuickPark – E-Parking System 2021 - 2022

Node, Express, MongoDB, React/React Native, Python, AWS

Group |

A fully-automated parking system consisting of a web-based portal for the car park owners, a mobile app for the car park users, and two IoT units for vehicle identification and parking spot allocation.

Contribution: Proposing the project, Web frontend, Mobile app, Spot assignment algorithm, MQTT communication, IoT unit hardware designs

EXTRA-CURRICULAR

ACES (Association of Computer Engineering Students)

Faculty of Engineering, University of Peradeniya

Secretary	2021/2022
Assistant Secretary	2020/2021
Committee Member	2019/2020

Rotaract Club of University of Peradeniya

University of Peradeniya

Vice President of Public Relations	2021/2022
Director of Public Relations	2020/2021
Active Member	2019 - 2022

MOOCs

Introduction to Cybersecurity Tools and Cyber Attacks

IBM — May 2020

Supervised Machine Learning: Regression and Classification

DeepLearning.AI — Nov 2022

REFERENCES

Dr. Isuru Nawinne

isurunawinne@eng.pdn.ac.lk

Senior Lecturer,
Dept. of Computer Engineering,
Faculty of Engineering,
University of Peradeniya, Sri Lanka

Dr. Asitha Bandaranayake

asithab@eng.pdn.ac.lk

Senior Lecturer,
Dept. of Computer Engineering,
Faculty of Engineering,
University of Peradeniya, Sri Lanka

Pipelined RV32IM Processor — 2023 - Present

Verilog

Group |

Designing a standard 5-stage in-order pipelined RISC-V processor implementing the RV32I base instruction set along with the M-extension for multiplication/division operations.

Compiler for COOL Language — 2022

C++, Flex, Bison

Group |

Implemented a 4-stage compiler for the COOL programming language comprised of a lexical analyzer, parser, semantic analyzer, and a code generator that generates MIPS assembly code.

Techniques: Finite State Machines, Abstract Syntax Trees, Regular Expressions, Context-Free Grammars

Reconstruction of Highly-Degraded License Plate Images — 2022

Python, OpenCV, Tesseract-OCR

Group |

Demonstrated the effectiveness of traditional image processing techniques in the reconstruction of low-resolution license plate images obtained from CCTV footage.

Techniques: EDSR upscaling, Fourier domain analysis, Degradation modelling (De-blur and De-noise), OCR

ACHIEVEMENTS/CERTIFICATIONS

Hacktitude 2022 Inter-University Hackathon | 99x — Jan 2022

37th place out of 200 teams | Team of Three

Technologies: Node/Express, Javascript, EJS, SQLite, Git

IEEEXtreme 16.0 Coding Competition — Oct 2022

713th out of 6,000+ teams worldwide (26th in SL) | Team of Three

iCS Hack The World 2.0 CTF Competition — Dec 2021

2nd Runner-Up | Team of Four

Technologies: Steganography tools (opensteg, zsteg), Cryptography tools (CyberChef, hashcat), Linux (Bash shell), Chrome Developer Tools

Linux Administration and DevOps Engineering Training Program | WSO2 — Jan 2022

Selected as one of 100 participants from 1,500+ registrants

Technologies: Linux (Bash shell), Google Cloud Platform, Web Servers (Apache, Nginx), Elasticsearch, Ansible, etc.

Certificate in Business Accounting | CIMA — Nov 2018