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, Python

Hardware Programming
Verilog HDL, AVR C, ARM 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

G.C.E. Advanced Level Examination
Ananda College - Colombo 10   2017
Combined Mathematics (A), Physics (B), Chemistry (B)

PROJECTS

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

Analytical Software for Next Generation Skim Sequencing Data   2022
Java, Maven, JavaFX
Group | 🌐 ◯

Created a standalone desktop application for analysis of Chloroplast, Mitochondria and ITS region NGS data.

Contribution: Setup of pipelines, UI design, CLI tool integration

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

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

8-bit Single Cycle Processor

2020

Verilog HDL

Group |

Designed an 8-bit single cycle processor with a MIPS-style instruction set comprised of an ALU, a register file and control logic along with a Harvard memory architecture for the CPU including aassociated cache memory.

Fractal Generator

2020

Java, Swing, Multi-Threading

Individual

Designed a multi-threaded GUI app that generates the Mandelbrot and Julia sets according to user specifications.

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.

Introduction to Cybersecurity Tools & Cyber Attacks | IBM

May 2020

Certificate in Business Accounting | CIMA

Nov 2018

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.

- CO221 - Digital Design
- CO224 - Computer Architecture
- CO323 - Computer Communication Networks II
- CO325 - Computer and Network Security