IMESH BALASURIYA

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PROFILE

A third-year Computer Engineering undergraduate with a passion for problem solving and a strong interest in Computer Architecture and Vision.

SKILLS

Programming Languages
C, Java, Python

Hardware Programming
Verilog HDL, AVR C, ARM Assembly

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

DBMS
SQL, MongoDB

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

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 - Present
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 associated 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