

# Praveen Dhananjaya

Portfolio: <https://sites.google.com/view/praveen-dhananjaya>  
Email: [praveendhananjaya@gmail.com](mailto:praveendhananjaya@gmail.com) | phone: +94 0778094061  
GitHub: <https://github.com/praveendhananjaya>

## EDUCATION

### COMPUTER ENGINEERING BSc hons (Eng) | University of Peradeniya Sri Lanka

Present – Oct 2022 | Faculty of Engineering

- 3rd-year undergraduate
- Current GPA : 3.40 / 4.00

### GCE | Advanced Level

2016

- Maths - A , Physics - B , Chemistry - B
- z-core 1.83
- 1206 from 30000+ participants nationwide

## SUMMARY

I am Praveen Dhananjaya, a 3rd-year Computer Engineering undergraduate from the Faculty of Engineering at the University of Peradeniya, Sri Lanka. I have a keen interest in Embedded, Computer Architecture, Cyber-Physical systems, Hardware development, and system integration. I am very excited to join your team and look forward to developing NUS's next groundbreaking research. I am seeking a hardware internship for the time period Dec/2021 to Apr/2022.

## RELEVANT COURSEWORK

### HARDWARE COURSES

- Computer Architecture, Digital Design, Embedded Systems, Signal Processing, Computer Systems Engineering: Industrial Networks, Electronics I , Electronics II | Bsc Eng Degree Program
- Circuit Design

### PROGRAMMING

- software construction, Data Structures and Algorithms, programming methodology, Software Engineering | Bsc Eng Degree Program
- Verilog, C++, Arm , ARM assembly, Java, Python , Arduino

### OTHER COURSES

- Machine learning, Neural Network, Operating Systems, Computer and Network Security | university course
- Deep learning | deeplearning.ai-coursera

## PROJECTS

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### SMART WAREHOUSE MANAGEMENT SYSTEM 2021

This is a fully automated warehouse management system using agvs and robotic arms. This system is able to support shopping websites while preparing customer orders autonomously.

- Technologies : circuit design, AVR C and Arduino, multitasking(real-time scheduling) and interrupt, active filters, encryption schemes(fernet and ect), Mysql, mqtt, AWS server
- <https://github.com/cepdnacl/e16-3yp-smart-pharmaceutical-warehousing>

### 8-BIT SINGLE-CYCLE CPU 2020

8-bit single-cycle CPU based on Harvard architecture which uses a 32-bit instruction word. This CPU is able to execute most algorithms.

- Technologies : Verilog, Harvard architecture, pipelining mechanisms , memory hierarchy(direct-mapped cache), custom assembler

## TECHNICAL SKILLS

### PROGRAMMING LANGUAGES | C

, C++, Java(Gradle) , Python

### HARDWARE PROGRAMMING |

Verilog, arduino, AVR C, PIC, ARM Assembly

**PCB DESIGN** | Altium , eagle , easyeda

**3D MODELING** | Fusion 360 , solidworks

- github: <https://github.com/praveendhananjaya/CPU-8-bit-FPGA->

## 8 BIT COMPUTER SAP-1 2020

This is a common bus architecture (SAP-1) computer. It can compute simple algorithms. For this implementation, I designed and developed a custom PCB and microinstruction set.

- Technologies : VSAP-1 architecture, circuit design, custom assembler
- github: <https://github.com/praveendhananjaya/CPU-8-bit-common-bus>

## MICRO-MOUSE 2019

develop a robot that can approach the destination of a maze. Real-time operation using interrupts and super loop approach.

- Technologies : custom PCB, Arduino and C flood fill algorithm A\* algorithm, active filters, superloop programming architecture
- github: <https://github.com/praveendhananjaya/micro-mouse>

## LANDSLIDE MONITORING SYSTEM 2018

This is low budget Land slide monitoring system. This system is capable to detect and monitor the land side and land behavior.

- Technologies : flexible piezoelectric sensor and single analyse, active filters, pattern recognition, UDP communication using WiFi network superloop programming architecture

## HOSPITAL MANAGEMENT SYSTEM 2020

This system is able to manage hospital resources without starving the services. While handling all the cashiers' workers. Ex:- billing and recording.

- Technologies : MySQL, HTML, PHP
- github: <https://github.com/praveendhananjaya/hospital-managment-system>

## FRACTAL VISUALIZER 2020

JAVA OOP base multithreading programme. Fractal Visualizer is java based program and calculates 640000 mandelbrot or Julia fractal within seconds. In order to maximize the performance, the master thread creates a job bank with 400 entries and continuously feeds. And these jobs are processed by CPUs. As a result, both CPUs and jobs aren't starving without resources.

- Technologies : Java OOP, Which is accelerated by tiled base multi threading
- github: <https://github.com/praveendhananjaya/Fractals>

## SURVEILLANCE CAMERA SYSTEM 2020

Suspicious activity tracking. ex:- Face covers , Abandoned packages , suspicious object , unauthorized people

- Technologies : python , tensor-flow

## FOOTWEAR WAREHOUSE MANAGEMENT SYSTEM - REAL CUSTOMER present

We are developing a footwear warehouse management system for a local customer. In this project, we are addressing his issues and requirement. Such as reliable data recording, cashier pos system, salesman interface, product preview.

- Technologies : Java base system (host on raspberry pi) gradle automation, microservices architecture, Sql, javaFX, encryption.

## LIVER PATIENT IDENTIFICATION SYSTEM present

These liver get diseases due to various reasons, and they are fuzzy in relations. The liver patient does not get symptoms in the early stages, and the symptoms may be vague. We are developing a machine model to solve this problem.

- Technologies : Garbage In Garbage out, Occam's Razor, PSO feature extraction, RANDOM FOREST(RF), SUPPORT VECTOR MACHINE (SVM) ,MLP (Multilayer Perceptron)
- Project Proposal:  
<https://docs.google.com/document/d/1gmkr3Zk6c73GIBAXvno4e2rnpemJlmiZRz9w6iyu7oY/edit?usp=sharing>

## ACHIEVEMENT

### CYBERSECURITY CISCO | 2021

course authorized by CISCO and offered through CISCO networking academy

### NERUAL NETWORKS AND DEEP LEARNING | 2021

course authorized by Deeplearning.AI and offered through Coursera

**ROBOFEST MICROMOUSE** 3rd place| 2019

14×14 Maze solving robot competition.Using small robot, nationwide competition over 100+ teams

**ACES HACKATHON** 1st place| 2019

Surveillance camera system Suspicious activity monitoring system, competition over 60+ teams

**MORA XTREME 4.0** 1st place| 2019

12-hour algorithmic coding nationwide competition,nationwide competition over 100+ teams

**JAFFNA CODERS V1.0** 4th place| 2019

12-hour algorithmic coding nationwide competition,nationwide competition over 80+ teams

**ACES CODERS V7.0|2018** participation

12-hour algorithmic coding nationwide competition,nationwide competition over 150+ teams

**ACES HACKATHON** 1st place| 2018

landslide monitoring system , low cost landslid detection and alarming system, competition over 60+ teams

## REFERENCES

**DR. ISURU NAWINNE|** Univeristy of Peradeniya

Senior Lecturer, Dept. of Computer Engineering

isurunawinne@eng.pdn.ac.lk

+9481 239 3470

**DR. SUNETH NAMAL KARUNARATHNA|** Univeristy of Peradeniya

Senior Lecturer, Dept. of Computer Engineering

namal@eng.pdn.ac.lk

+9476 832 1333