

# Praveen Dhananjaya

Portfolio: <https://sites.google.com/view/praveen-dhananjaya>  
Email:praveenbhananjaya@gmail.com|Email:e16081@eng.pdn.ac.lk  
GitHub: praveendhananjaya | phone: +94 0778094061

## EDUCATION

**COMPUTER ENGINEERING** BSc hons (Eng) | University of Peradeniya  
Faculty of Engineering

Present

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

**GCE A/L**

2016

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

## SUMMARY

I'm Praveen Dhananjaya, a 3rd-year Computer Engineering undergraduate from the Faculty of Engineering at the University of Peradeniya. I have a keen interest in AI, embedded systems, high-performance programming, and Computer Architecture. I have experience in AI/Hardware system design and development. Not only that, I have a well-developed understanding of frontiers and uncertainty control. Apart from that, I have hands-on experience in software performance optimization and resources utilization in GPU, CPU, microprocessors and FPGA, and memory hierarchy. I'm very excited to join your team and look forward to developing your' next groundbreaking project.

## RELEVANT COURSEWORK

### AI COURSES

- Machine Learning and Data Mining, Neural Networks and Fuzzy Systems | university course
- Deep learning, | deeplearning.ai-coursera
- RNN , TensorFlow

### PROGRAMMING

- software construction, Data Structures and Algorithms, programming methodology, Software Engineering | Bsc Eng Degree Program

### OTHER COURSES

- Signal Processing(FFT) , OS (process pipe line, hierarchy resources utilization), Security | university course

## TECHNICAL SKILLS

**PROGRAMMING LANGUAGES** | C , C++ , Java(Gradle) , Python

**RELEVANT** | SQL, php, GitHub, IntelliJ IDEA, pycharm, Colab

**HARDWARE PROGRAMMING** | Verilog, arduino, AVR C, PIC, ARM Assembly

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

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

## PROJECTS

Portfolio: <https://sites.google.com/view/praveen-dhananjaya>

### WEATHER FORECAST

present

Weather plays a major role in day-to-day life. So accurate weather forecast has a higher value. We are trying to outperform the current weather forecast method(NWP) using a lightweight Recurrent neural network model.

- Technologies : TensorFlow(TF), RNN, LSTM layer, attention layer

### 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) , Multilayer Perceptron (MLP), SMOTE , cross validation, Regularization L1, L2
- Colab: [https://colab.research.google.com/drive/1mNpaoqGSqncNlxwPdsL\\_Ks\\_b1cn\\_3v\\_usp=sharing](https://colab.research.google.com/drive/1mNpaoqGSqncNlxwPdsL_Ks_b1cn_3v_usp=sharing)
- Project Proposal: <https://docs.google.com/document/d/1gmkr3Zk6c73GIBAXvno4e2rnpemJlmiZRz9w6iyu7oY/edit?usp=sharing>

## 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
- 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, Witch 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.

## ACHIEVEMENT

### CYBERSECURITY CISCO

course authorized by CISCO and offered through CISCO networking academy

2021

### NERUAL NETWORKS AND DEEP LEARING

course authorized by Deeplearning.AI and offered through Coursera

2021

### ROBOFEST MICROMOUSE 3rd place

14x14 Maze solving robot competition.Using small robot, nationwide competition over 100+ teams

2019

### ACES HACKATHON 1st place

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

2019

### MORA XTREME 4.0 1st place

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

2019

### JAFFNA CODERS V1.0 4th place

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

2019

### ACES CODERS V7.0 participation

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

2018

### ACES HACKATHON 1st place

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

2018

## REFERENCES

### DR. ISURU NAWINNE

Senior Lecturer, Dept. of Computer Engineering  
isurunawinne@eng.pdn.ac.lk  
+9481 239 3470

Univeristy of Peradeniya

### DR. SUNETH NAMAL KARUNARATHNA

Senior Lecturer, Dept. of Computer Engineering  
namal@eng.pdn.ac.lk  
+9476 832 1333

Univeristy of Peradeniya