

# HESHAN DISSANAYAKE

Department of Computer Engineering Faculty of Engineering University of Peradeniya Sri Lanka  
e16088@eng.pdn.ac.lk ◇ +94750365739 ◇ Portfolio

## PROFILE

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A computer Engineering undergraduate with a motivation to explore the underlying concepts and theories to invent creative solutions to existing problems. I have interests in vision, robotics and the machine learning application in the field of robotics. I have done several interesting projects to explore the real application aspect of my interests. Perform well in my academic and self initiated projects is something that I consider as important. I believe that achieving the solution for a certain problem requires leadership, management, and communication skills, qualities which I develop every day in my life.

## INTERESTS

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Computer Vision      Robotics and Automation      Cyber-physical system

## EDUCATION

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**University of Peradeniya, Sri Lanka** *2017 Nov - Present*  
Undergraduate in BSc. Engineering(Hons.) **GPA: 3.6/4.00**

## PROJECTS

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(project portfolio: <https://heshds.me/>)

### Group Projects

**Obstacle robot swarm for swarm robotic project** 2020-2021

- A system of obstacle robots for a swarm robotic platform.
- *Technologies: Python, OpenCV, numpy, MQTT, JavaScript, GRPC*
- *Techniques: Image Processing, stochastic gradient descent, Encryption*

**RISCV 32-bit pipeline CPU \*(in progress)** 2020

- RISCV 32-bit five stage pipeline CPU design.
- *Technologies: Verilog HDL*
- *Techniques: pipeline CPU architecture, RISCV32MI*

**8-bit Computer** 2020

- Design and building a 8-bit computer.
- *Technologies: Embedded system, Integrated circuits*
- *Techniques: Computer Architecture*

**Micromouse** 2019

- Autonomous maze navigation robot using custom made sensors
- *Technologies: Arduino Microcontroller, IR Sensors, Gyroscope*
- *Techniques: Graph Theory, PID Control Systems, Sensor Calibration*

## SIIM-ISIC Melanoma Classification

2020

- Identify melanoma in lesion images.
- *Technologies: Python, Tensorflow, numpy*
- *Techniques: Image Processing, Convolution Neural Networks, Transfer Learning*

## Individual Projects

### Convolution Auto Encoder for Person Re-identification

2020

- Using Auto Encodes for Convolution neural networks to identify a predefined person.
- *Technologies: Python, Tensorflow, numpy*
- *Techniques: Image Processing, Auto encoders, Convolution Neural Networks*

### Bird Watcher system

2020-2021

- A system to watch birds from remote streaming devices
- *Technologies: Python, RTMP, OpenCV, MQTT, JavaScript, ffmpeg, nginx, Flutter, Google Vision AI*
- *Techniques: Real time video streaming, Motion Detection*

### Verilog Based CPU

2020

- Designing of a 32-bit CPU which supports simple instructions with caching.
- *Technologies: Verilog*
- *Techniques: Computer Architecture*

## ACHIEVEMENTS

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### DataStorm 1.0

2020

2nd Runners up

Task : Credit Card Default Prediction

### ACES Hackathon

2019

1st place in Travel and Safety Category

Project : Neural Network based CCTV System for tracking individuals and unattended baggage

### SLIIT Robofest

2019

3rd place in the undergraduate category

Task : Autonomous Maze Navigating Robot (Micromouse)

### ACES Hackathon

2018

1st place in Network and System Category

Project : Landslide Detection System

### Selected to Faculty of Engineering, University of Peradeniya

2016

National Rank - 1200

Z - score - 1.83

### 9A passes in GCE Ordinary Level

2013

## SKILLS

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<b>Programming Languages</b>	Python, Java, JavaScript, C, C++
<b>Numerical Computing Packages</b>	MATLAB, Octave, Numpy, TensorFlow
<b>Procedural programming</b>	ARM Assembly
<b>Hardware Programming</b>	AVR programming, Verilog HDL
<b>PCB Designing</b>	Eagle, Altim
<b>3D Modelling</b>	AutoCAD, Fusion360
<b>Version control</b>	git
<b>Practical Skills</b>	Soldering, PCB design and development
<b>Languages</b>	English, Sinhala

## EXTRA-CURRICULAR

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Committee member of the Hacker's club of the University of Peradeniya (2020 - Present)

Member of the Music Society of the University of Peradeniya (2018 - Present)

Committee member of Astronomy Club of KingsWood College Kandy (2016)

Member of Science Society of KingsWood College Kandy (2016)

Member of Photography of KingsWood College Kandy (2016)

## OTHER INTERESTS AND HOBBIES

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3D modeling and digital art Enthusiast.

Drawing and Painting Enthusiast.

Amature Astronomer.

## REFERENCES

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**Prof. Roshan G. Ragel**

Professor, Dept. of Computer Engineering

Univeristy of Peradeniya

roshanr@eng.pdn.ac.lk

**Dr. Isuru Nawinne**

Senior Lecturer, Dept. of Computer Engineering

Univeristy of Peradeniya

isurunawinne@eng.pdn.ac.lk