

Kanishka Gunawardana

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Profile

I am an enthusiastic 3rd year Computer Engineering undergraduate with a fervent interest in Computer Architecture, Embedded Systems, Computer Vision, and Machine Learning. Driven by a passion for leveraging cutting-edge technology to tackle complex challenges and create impactful solutions.

Education

University Of Peradeniya

Nov. 2021 – Present

Undergraduate in B.Sc. Engineering(Hons.) Computer Engineering

Current GPA: 4.0/4.0

Field Rank: 1/90

Dharmaraja College Kandy

Nov. 2006 – Aug. 2019

G.C.E. Advanced Level Examination

Z-score: 2.5661

National Rank - 149/19508, District Rank - 11/1189

Experience

Casual Instructor

Jun. 2022 – Present

Department of Computer Engineering, University of Peradeniya

GP106: Computing, CO222: Programming Methodology - Supervised 2hr long weekly lab sessions based on Python and C programming languages. Assisted in quiz creation and lab material preparation and designing course projects.

Volunteering

Sep. 2023 – Present

Project Nenathambara - University of Peradeniya

Led University of Peradeniya's outreach program for Project Nenathambara, organizing workshops on Arduino and robotics for underprivileged students in Sri Lankan schools.

Selected Projects

Impact Tracking System For Athletes(IMPAX) | Group | 🌐

Nov. 2023 – Mar. 2024

- Developed a real-time impact monitoring system for contact sports using wearable devices, enabling prompt concussion identification, post-session data transmission, and comprehensive analytics for player safety and informed decision-making.
- Wearable devices transmit real-time impact data to a central hub, connecting live dashboards via a local area network. Subsequently, the data is securely uploaded to a cloud-based backend for player analysis.
- Technology: **Arduino, Raspberry PI, MQTT, Python, Express.js, MongoDB, AWS**

A Field-Based Approach for Quantifying Plant Leaf Color | Group | 🌐

Aug. 2023 – Nov. 2023

- Developed a mobile application with a backend that utilizes Image Processing and Computer Vision to objectively quantify plant leaf colour by analyzing information extracted from captured leaf images.
- Techniques: Image Segmentation, Colour Extraction, K-mean Clustering
- Technology: **Python, OpenCV, Pytorch, FastAPI, Flutter**

8-bit Single-cycle Processor | Group | 🌐

Mar. 2023 – Jun 2023

- Designed and implemented an 8-bit single-cycle processor architecture in Verilog HDL, supporting arithmetic, logic, data transfer, and control flow instructions.
- Built a comprehensive testbench for verification, ensuring processor functionality and timing constraints.
- Technology: **Verilog-HDL**

Obstacle Robot Swarm for Swarm Robotic Project | Group | 🌐

Feb. 2024 – Present

- Leading the development and firmware update of obstacle robots with collision avoidance algorithms for the swarm robotics platform.
- Integrating obstacle robots with the existing platform, enabling studies of dynamic obstacle scenarios.
- Technology: **Arduino, Python, Java, MQTT, OpenCV**

Sri Lankan Export-Grade Mango Fruit Identification | Group |

Mar. 2024 – Present

- Developing a computer vision system to classify the quality and maturity level of Sri Lankan export-grade mangoes by isolating mango images from background photos.
- Incorporating both traditional image processing techniques and advanced deep learning approaches for segmentation and classification.
- Techniques: Image Segmentation, Contouring, Spatial and Frequency domain filtering
- Technology: **Python, OpenCV, TensorFlow**

Department Space Management System | Group |

Mar. 2023 – Jun. 2023

- Developed a web application using Spring Boot and React for efficient reservation management of shared spaces in a university department, including waiting list functionality and user hierarchy for access control.
- Technology: **Java, Spring Boot, React.js, MySQL**

Achievements

SLIoT Challenge 2023 | *Sri Lankan Biggest IOT Competition* | Group

Mar. 2024

- 2nd Runners up(Out of 100+ Teams) | *Organized by University of Moratuwa in collaboration with SLT-MOBITEL and IESL*

MoraXtream 8.0 | *12 hour algorithmic programming competition* | Group

Nov. 2023

- National Rank - 4(Out of 400+ Teams) | *Organized by the IEEE Student Branch of the University of Moratuwa*

IEEEExtreme 17.0 | *24 hour algorithmic programming competition* | Group

Nov. 2023

- Global Rank - 374(Out of 16500+ participants), National Rank - 24(Out of 330 Teams)

ACES Coders v10.0 | *12 hour algorithmic programming competition* | Group

Oct. 2023

- National Rank - 12(Out of 350+ participants) | *Organized by the Association of Computer Engineering Students of the University of Peradeniya*

ACES PreCoders v10.0 | *6 hour algorithmic programming competition* | Group

Sep. 2023

- University Rank - 2(Out of 50+ Teams)

ACES Hackathon 2023 | *An inter-university hackathon organized by the ACES* | Group

Sep. 2023

- LearnLink - online platform serve as market place to sell books

Certificates

Machine Learning Specialization - Stanford University & DeepLearning.AI(Coursera)

Sep. 2023

- Supervised Machine Learning: Regression and Classification
- Unsupervised Learning, Recommenders, Reinforcement Learning
- Advanced Learning Algorithms

Engineering Drawing and 3D Modelling using AutoCAD

Mar. 2021

Technical Skills

Languages: Python, C/C++, Java, SQL, JavaScript, Verilog HDL, ARM assembly

Frameworks: Arduino, Express.js, Spring Boot, FastAPI

Libraries: OpenCV, NumPy, Matplotlib, Pandas, Pytorch, TensorFlow

Developer Tools: Git, Docker, Quartus, GTKWave, AWS

Extra-Curricular Activities

Head of Web Development - Robotics Society - University of Peradeniya

Sep. 2023 - Present

Executive Committee Member - Robotics Society - University of Peradeniya

Dec. 2022 - Sep. 2023

Member of Rotaract Club of University of Peradeniya

Dec. 2021 - Present

References

Prof. Roshan G. Ragel | roshanr@eng.pdn.ac.lk

Head of Department, Department of Computer Engineering, Faculty of Engineering, University, Peradeniya, Sri Lanka.

Dr. Isuru Nawinne | isurunawinne@eng.pdn.ac.lk

Senior Lecturer, Department of Computer Engineering, Faculty of Engineering, University of Peradeniya, Sri Lanka.