Kanishka Gunawardana

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Profile

Enthusiastic Computer Engineering undergraduate with a fervent interest in Computer Architecture, Robotics, Computer Vision, Deep Learning, and Cyber-physical Systems. 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.

Projects

Impact Tracking System For Athletes(IMPAX) | *Group* | Nov. 2023 – Mar. 2024
- Developed a real-time impact monitoring system for sports using wearable devices and dashboards with integrated backend and secure database, enabling prompt concussion identification, post-session data transmission, and comprehensive analytics for player safety and informed decision-making.
- Technology: **Arduino, Raspberry PI, MQTT, Python, Electron.js, Express.js, MongoDB**

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 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**

Identifying export grade Mango fruits | *Group* | Mar. 2024 – Present

- Creating a computer vision system for classifying defective and healthy mangoes based on image processing techniques
- Techniques: Image Segmentation, Colour Extraction
- Technology: **Python, OpenCV**

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**

Database for Cricket Statistics | *Group* | Mar. 2023 – Jun. 2023

- Designed and developed CricLive, a comprehensive database for cricket statistics, enabling users to store, manage, and analyze data on players, teams, and matches.
- Technology: **Node.js, Express.js, React.js, MySQL, WebSocket**

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*

IEEEXtreme 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

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

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

References

Prof. Roshan G. Ragel | ***roshanr@eng.pdn.ac.lk***
Head of Department, Department of Computer Engineering, Faculty of Engineering, University, Peradeniya, Sri Lanka

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