Amaya Dharmasiri

BSc.Electronic and Telecommunication Engineering (Undergraduate)

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*Enthusiastic, fast learning and self driven team player with good potential to meet deadlines. Looking for academic and career opportunities in **Computer vision, Machine learning and Robotics***

o LinkedIn   o Medium   o YouTube   o Github   o Hackerrank

Education

University of Moratuwa - Sri Lanka   **September 2017 – PRESENT**
B.Sc. Engineering (Electronics and Telecommunications)

Undergraduate (Semester 6)   **Cumulative GPA- 4.14**   **Dean's list in semesters 1,2,3,4**

Related Coursework:
o Programming fundamentals A+   o Machine Vision A+   o Differential equations A-
o Signals and systems A+   o Calculus A+   o Electronics III A+

Maliyadeva Girls' College   **January 2003 – August 2016**
G.C.E. Advanced Level   Ranked **First in Country**/ Z score 2.9804

o Combined Mathematics A   o Physics A   o Chemistry A

Other courses
o Neural networks and Deep learning (on Coursera)   Certificate earned - Aug 2019
o Improving deep neural networks (on Coursera)   Certificate earned - Oct 2019
o Structuring machine learning projects (on Coursera)   Certificate earned - Nov 2019
o Sequence Models (on Coursera)   Certificate earned - May 2020
o Version control with Git (on Coursera)   Ongoing
o Introduction to Philosophy (University of Edinburgh - Coursera) Certificate earned - April 2020

Experience

Internship - Visiting Student Researcher - University of Sydney

o I currently work as a visiting undergraduate researcher at the faculty of Computer Science, University of Moratuwa. My work focuses on Field of View prediction for Content-aware 360 degree video streaming.)Certificate earned - Aug 2019

Research and Projects

Content Aware 360 Degree Video Optimization in Mobile Systems (Research)   **Ongoing**

o Development of an end to end system to efficiently stream 360 Degree videos. Visual content analysis including image saliency, object composition, and optical flow is incorporated to design a tiling scheme to encode the 360 degree videos for efficient bandwidth utilization and improved Quality of Experience. My current contribution includes mathematical modeling of user behaviour (requested field of view) using the existing datasets.

Combining object detectors for stereo images (Research)   **2019**

o A geometric approach to combine object detections on corresponding images of two stereo cameras on autonomous driving vehicles, to increase precision and recall. A fasterRCNN-resnet101 detection model was used on KITTI can Cityscapes autonomous driving datasets for the experiment. LIDAR and stereo image depth calculations were done. Used **Tensorflow, keras** and **openCV** was used.

Generalization ability of object detection/ segmentation models (Research)   **2019**

o Observed and evaluated the performance of object detection and object segmentation models across various autonomous driving datasets of different scenes and cities. Objective is to explore the correlation between model architectures and scene properties on generalization ability. Experiments are being carried out with **KITTI, Cityscapes, berkeley** and **Apollo scape**

Vision based person tracking Automated stage spotlight — 2020

- An Electronic Product Design project. The stationary spotlight can rotate in two axes to track a performer on stage. An IR camera sends the position of a tag which emits IR light worn by the performer to the computer in real time.

Vision based autonomous robot navigation — 2020

- An autonomous car which is able to navigate within lanes drawn on the arena, switch lanes and respond to obstacles placed in the arena. Vision system based on Raspberrypi 3 and Picamera. Currently developing a stereo vision system to 3D reconstruct the robot's surrounding. Processing done using **Python** and **OpenCV**.

Micromouse robot — Aug 2019

- Designed and built a micromouse robot with Time of Flight laser sensors which can solve and travel in the optimum path on a 16*16 maze (as per international micromouse competition rules). Control based on **STM32** programmed with **c++** with a modified version of flood fill algorithm.

Predicting online shoppers' purchasing interest — Sept 2019

- Predicting the probability of a visitor of an online shopping website making a purchase, based on data generated from google analytics on the website to an accuracy of 93%. Explored the use of multiple random forests with grouped features. Dataset from kaggle. Used **pandas, sklearn** and **anaconda**.

Tic-tac-toe playing robot — Dec 2018

- Designed and built a robot that plays the famous game tic-tac-toe. A CNC mechanism was used to record the robots move on the paper. Control based on **PIC** microcontroller programmed with **C**. Algorithm based on Min-max. The robot can draw the game if human plays optimally. Else, beats the human player.

Electronic Stethoscope — Jan 2020

- Designed and built a fully functional electronic stethoscope with frequency filtering. Designed, tested and fabricated the filter and amplifier circuits.

Buck- Booster in 6 hours — July 2019

- Designed, analysed and built a buck-booster with 10V output and <5V input with an inbuilt pulse generator during 6 hours as a part of IEEE Circuit design competition. Used **Multisim** for simulating.

Skills

Languages

- Python
- MATLAB
- C/C++ (novice)

Tools

- Tensorflow
- Solidworks
- ROS
- Altium
- Git (version control)

Interests

- Computer Vision
- Machine Learning
- Data analysis
- Robotics
- Electronic design

Achievements

Bronze medal - International Physics Olympiad — June 2017 Yogyakarta- Indonesia

- Annual Physics competition (Theoretical and Experimental) with the participation of 83 Countries around the world

All Island best performance - G.C.E. Advanced Level — August 2016

- University entrance examination taken by 270 000 students annually. Passed with 3 'A' passes and an Z-score of 2.98 as the 1st Ranker in Physical Sciences stream.

Participation/ National Champion - Asian Physics Olympiad — April 2017 Yakutsk- Russia

- Annual Physics competition with the participation of 19 Asian countries

Participation/ National Champion - International Science Olympiad Oct 2008- Lombok- Indonesia

- A Science and Maths competition for junior school students among over 50 countries held in Lombok- Indonesia.

Regional Finalists (APJ) - Innovate FPGA by Intel and Terasic — Aug 2019

- An international FPGA based project development competition organized by Intel and Terasic.

Baden Powell Award - World Organization of Scout Movement — Feb 2019

- The highest and the most prestigious award that can be won by a scout in their scouting life. Awarded for Rover Scouts throughout the world with exceptional performance and community service.

President Guide award   Feb 2014

- The highest award awarded by the Sri Lankan Association of Girl Guides and Girl Scouts for a girl guide below 17 years for exceptional performance and personal development.

Most Outstanding student - Maliyadeva Girls' College   2016

- Awarded to the student of the graduating class with most impressive performance in both academics and extra-curricular activities.

Music Visharad Award - Bhathkande University (Luknow- India)   2013

- A four year open Degree in Hindusthani Classical Music. Completed with a distinction pass, specialized in Violin and Vocals.

1st Runner Up and Best Impromptu Speaker- Speech Olympiad XII   2018

- An inter-university public speaking competition organized by the Gavel Club of University of Moratuwa.

First Runner Up- Unilever Business Challenge   2018

- A business case study and campaign design competition, organized by Unilever Sri Lanka as a part of Unilever global business challenge.

9th in Sri Lanka- IEEEextreme 13   2018

- The world's largest 24 hour algorithmic coding challenge organized by IEEE for university students. Placed 191 in the world out of 4000+ teams.

Extracurriculars/ Volunteering/ Leadership

President- Gavel Club of University of Moratuwa   Jan 2020 – PRESENT

- An Affiliate of Toastmasters International.
- Registered Club with over 300 current members.
- Operates with the purpose of developing the Public speaking, Communication, Leadership and Networking skills of the members to help reinforce their personal development.
- Currently chairing an executive committee of 14, organizing weekly educational meetings, themed meetings, Speech competitions and workshops and other projects.

Producer and Host - "Rummage"   June 2020 – PRESENT

- Link to the archive - Here
- A personal podcast initiative with episodes released every two weeks.
- The podcast features guests with various backgrounds, and contents focus on a wide range of topics; technology, education, life, society and philosophy.
- I research and create content, I also host the podcast, conduct interviews and carry out post production.

Chairman- Ethugalpura Pioneers Girls Rover Crew   Sept 2017 – Sept 2019

- A community based crew of 90 registered Rover Scouts. Under Sri Lanka Scouts Association.
- Won the awards for the best performing Girls Rover Crew for the years 2016 and 2017.
- Organized annual community service projects such as Blood donation camps, Disaster relief programs and Tree plantation campaigns

Member- Gavel Club of University of Moratuwa   Sept 2017 – PRESENT

- Affiliated entity of toastmasters international. Organize themed gavel meetings, Do announcing, moderating and hosting in various campus events.

Voluntary scouting teacher- Sri Lanka Scouts Association   2017 – 2018

- Taught scouting for a cub-scout pack of 40 children (below 10 years).
- Organized various learning activities; camp outings, cooking fiestas and outdoor hikes.

Student Representative- Department of Electronic and Telecommunication Engineering   2018

- Represented and coordinated a batch of 120 undergraduates for a year.

Sub Editor- Electronics Club of University of Moratuwa   Jan 2019 – PRESENT

- Maintain documentation for the club, Edit and create content for club newsletters, event souvenirs, brochures and flyers.

Member- Rotaract Club University of Moratuwa   Sept 2017 – PRESENT

- Affiliated entity of Rotary international. Chaired a project "Gold Chasers"- a training program for Sri Lankan team in Asian and International Physics Oympiads.

Secretary- Interact Club of Maliyadeva Girls' College   2015 – 2016

Vice President- Media Club of Maliyadeva Girls' College   2015 – 2016

References

○ **Dr. Ranga Rodrego** - Senior Lecturer, Department of Electronic and Telecommunication Engineering, University of Moratuwa
  Email- ranga@uom.lk
○ **Dr. Sadeep Jayasumana** - Senior Research Scientist - Google Research
  Email- sadeep.jay@gmail.com