



Harshana Weligampola

22/B, Haliyadda, Danthure, Kandy, Sri Lanka, 20465.

+94 71 3486 882

harshana.w@eng.pdn.ac.lk

github.com/harshana95 (Github)

linkedin.com/in/harshanasumedha (LinkedIn)

• Interests

- Algorithmic programming
- Machine learning / Artificial Intelligence
- Physics
- Computer Vision

• Education

- 2015 – 2020 **BSc in Computer Engineering**, University of Peradeniya, Kandy, Sri Lanka.
 - Current GPA: 3.95/4.0
- 2012 – 2014 **G.C.E. Advanced Level** in Physical Science, Kingswood College, Kandy, Sri Lanka.
 - Subjects: Mathematics, Physics, Chemistry Z-score: 2.714 Rank: 28th overall in the country.

• Industrial Experience

- Research Assistant – SLTC, Padukka. (2020 - present)
- Worked as an AI Research Intern in Nokia Bell Labs, Antwerp, Belgium. (2019-2020)
- Co-Founder/Director – Fugex Technologies (Pvt) Ltd.

• Teaching Experience

- Subjects taught in SLTC: CCS112 – Internet technologies, ECS100: Programming Fundamentals.
- Subjects taught in UoP: CO543 – Image processing, CO224 – Computer architecture.

• Volunteering Experience

- Temporary instructor – Computer Engineering Department, University of Peradeniya. (2019)

• Awards and Honors

- 2016 - **1st Country Rank** and 62nd World Rank, IEEEExtreme 10.0
 - Global 24hr competitive programming competition. More than 3000 teams participated.
- 2017 - **1st Country Rank** and 116th World Rank, IEEEExtreme 11.0
- 2018 – **2nd Country Rank** and 79th World Rank, IEEEExtreme 12.0
- **Participated** in Regional ACM/ICPC competitive programming selection round.
 - *International Collegiate Programming Contest (ICPC)* is a multitier, team-based, competition
- **1st Team Rank**, ACES Coders v6.0
 - ACES Coders is the biggest competitive programming competition in Sri Lanka.
- **2nd place**, Dialog Axiata NB-IoT hackathon
 - First NB-IoT hackathon organized in the country.
- **Best Software**, ACES Hackathon 2017, Faculty of Engineering, University of Peradeniya
 - Intra-faculty Hackathon.
- 2015 - **Bronze Medal** - 46th *International Physics Olympiad*, Mumbai, India.
 - Annual physics competition for high school students with 5hr theoretical and practical tests.
- 2015 - **Successful Participation** – 16th *Asian Physics Olympiad*, Hangzhou, China.
- **Gold Medal** – Ranked First Overall, *Sri Lankan Physics Olympiad*.
- **4th place** – Sri Lanka Robot Challenge, University of Moratuwa.
 - Most competitive robotics challenge in the country.

• Research

- An Optical Physics Inspired CNN Approach for Intrinsic Image Decomposition
- On Deep Learning for Radio Resource Management in A Non-stationary Radio Environment

- Retinex based GAN Pipeline to Utilize Paired and Unpaired Datasets for Enhancing Low Light Images
- Generalizing Foreground Estimation Algorithms in Dynamic Background Conditions
- Non-contact Infant Sleep Apnea Detection
- **Projects**
 - Low light image enhancement
 - Identify the limitations in image analysis in low light environments.
 - Enhance images obtained in low light environments.
 - Infant sleep apnea detection system.
 - Identify sleep apnea in infants using a non-intrusive method.
 - Dynamic background subtraction using mixture models.
 - Background/Foreground estimation from videos with dynamic backgrounds using adaptive cylindrical mixture model.
 - Algorithms used – Adaptive mixture model, PCA, Self-Organizing maps
 - Technologies used – OpenCV, pyqtgraph
 - Autonomous maze solving robot
 - A robot that can traverse a wall maze and find the optimum path to travel.
 - Algorithms used – BFS, DFS
 - Technologies used - Arduino
 - CPU implementation using VHDL
 - Implemented ALU with memory management that can execute a binary code with given Instruction Set Architecture.
 - Technologies used – Verilog
 - Earth resource recognition software using Hyper Spectral Imagery
 - Identifying Earth resources by analyzing Hyper Spectral Images.
 - Algorithms used – Fourier Transform, PCA
 - Technologies used – MATLAB, NumPy, SciPy
- **Computer skills (In order of fluency)**

| | |
|--------------------------------------|--------------------------------------|
| Programming Languages | Python, C, Java, C++, MATLAB |
| Web | HTML, PHP |
| Mobile Programming | Android |
| Graphics / Video | Adobe Photoshop, Adobe After Effects |
| Operating Systems | Microsoft Windows, Linux, Android |
| Hardware-oriented Programming | Arduino, Verilog HDL |

- **Extra-Curricular**
 - **Secretary** – Astronomical Society, Kingswood College, Kandy.
 - **Team member (Junior)** – Basketball, Kingswood College, Kandy
- **Languages**
 - **English** – Professional fluency
 - **Sinhala** – Mother tongue
- **Referees**
 - Dr. Dhammika Elkaduwe
Department of Computer Engineering,
Faculty of Engineering,
University of Peradeniya.
dhammika@ce.pdn.ac.lk
+94 81-239-3914
 - Dr. Roshan Godaliyadda,
Department of Electrical & Electronic Engineering,
Faculty of Engineering,
University of Peradeniya.
roshangodd@ee.pdn.ac.lk
+94 77-770-9035