

# H. DASUN MADHAVA PREMATHILAKA

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A Biomedical Engineering Graduate interested in linking the concepts of Mathematics with Medical Sciences. Recently, I have been intrigued by statistical learning theory and its applications in biological/biomedical image analysis.

Research Interests:

Medical Image Processing

Statistical Analysis

Machine Learning

Pattern Recognition

## EDUCATION

### University of Moratuwa, Sri Lanka

B.Sc. Eng. in Biomedical Engineering (First Class Honors)

Class Rank: **1** (Gold Medal)

Dec 2018 - July 2023

Cumulative GPA: 4.06/4.2

Dean's List in all Semesters: 1,2,3,4,5,6,7,8

### Royal College, Colombo 07, Sri Lanka

G.C.E. Advanced Level (Physical Science Stream)

(Top 0.15% out of ~35000, Nationwide university entrance examination)

Jan 2009 - Dec 2017

4As / Z-score - 2.4170

## WORK EXPERIENCE

### Graduate Research Intern

Computer Vision and Pattern Discovery for Bioimages Group, Bioinformatics Institute, A\*STAR Singapore

Nov 2023 - Present

### Visiting Instructor

Department of Electronic and Telecommunication Engineering, University of Moratuwa (UoM) Sri Lanka

July 2023 - Nov 2023

### Research Intern in Biomedical Engineering

Effective Solutions (Pvt) Ltd

Jan 2022 - July 2022

Sri Lanka

## PROJECTS/ RESEARCH/ PUBLICATIONS

### Deep Geometric Framework to Predict Antibody-Antigen Binding Affinity

Undergraduate Thesis, Collaboration with Dr. Aravinda Munasingha, Pfizer Inc., USA

Nov 2022 - Present

[Thesis](#)

### Parallel Deep Learning Model for Generalized Synthetic Image Detection

Research Competition - IEEE Video & Image Processing Cup 2022 (VIPCUP 2022)

July 2022 - Sep 2022

[Report](#)

### Parasitic Egg Detection and Classification in Microscopic Images

Research Competition - ICIP 2022 Grand Challenge

Jan 2022 - July 2022

[ICIP Submission/ Preprint](#)

Nuwan Bandara, Sachini Chandanayake, **Dasun Premathilake**, Chalani Ekanayake; *"Rethinking Object Detection in terms of Classification and Localization through Parallel Deep Learning Models"* (preprint)

### CAMSAT: Paediatric Anaesthesia Monitoring System

Self-initiated Undergraduate Research

Oct 2021 - July 2022

[Report](#)

### Undergraduate Course Projects/ Simulations

[Repository](#)

## UNDERGRADUATE AWARDS

**Gold Medal** for the highest overall academic performance in the Biomedical Engineering Stream, University of Moratuwa, Sri Lanka

Dec 2023

**5th Place** at the IEEE Video and Image Processing Cup (Open Competition), Organized by the University of Naples Federico II and NVIDIA

Sep 2022

**1st Runners-up** of the SPARK Challenge 2021/22, Organized by the University of Moratuwa, Sri Lanka

July 2022

<b>1st Runners-up</b> of the 3rd International Energy and Electricity Market Business Decision Simulation Competition, Organized by Batangas State University, Philippines	Nov 2021
<b>Mahapola Merit Scholarship</b> for Engineering Undergraduates, awarded by the Government of Sri Lanka for the students who excelled at the university entrance examinations	Dec 2017

## OTHER NOTABLE ACHIEVEMENTS

<b>Cameron Samarasinghe Memorial Prize</b> , Awarded by Royal College, Sri Lanka for the best performance in Combined Mathematics	Sep 2017
<b>Sir Edward Denham Memorial Prize</b> , Awarded by Royal College, Sri Lanka for the best performance in Mathematics	June 2016
<b>Bronze Medal</b> at the 1st National Astronomy Olympiad (Junior), Organized by the Institute of Physics, Sri Lanka	Nov 2011
<b>Best Mathematical Talent</b> , Awarded by Sri Lanka Olympiad Mathematics Foundation	Jan 2010
<b>Participation</b> at the 6th International Mathematics and Science Olympiad, Indonesia	Nov 2009
<b>Silver Medal (Island 2nd)</b> at the National Mathematics and Science Olympiad, Sri Lanka	Oct 2009

## TEACHING EXPERIENCE

### Teaching Assistant

<b>BM4151</b> Biosignal Processing, UoM, Sri Lanka	Fall 2023
<b>EN4553</b> Machine Vision, UoM, Sri Lanka	Fall 2023
<b>BM3122</b> Medical Imaging, UoM, Sri Lanka	Fall 2023
<b>EN3160</b> Image Processing and Machine Vision, UoM, Sri Lanka	Fall 2023
<b>EN3551</b> Digital Signal Processing, UoM, Sri Lanka	Fall 2023
<b>BM2012</b> Anatomy and Physiology for Engineers, UoM, Sri Lanka	Fall 2023

## SKILLS

**Programming Languages:** Python, MATLAB,  $\text{\LaTeX}$   
**Frameworks:** PyTorch, PyG, TensorFlow  
**Software:** MultiSim, LTSpice, Altium  
**Languages:** English (IELTS Academic 8.5/9), Sinhala (Native)

### MOOCs

TensorFlow Advanced Techniques : 4-Course Specialization (on Coursera)	Mar 2022
MATLAB Programming for Engineers and Scientists Specialization (on Coursera)	Nov 2020
DeepLearning.AI Tensorflow Developer : 4-Course Professional Certificate (on Coursera)	Sep 2020
AI for Medical Diagnosis (on Coursera)	Sep 2020
Anatomy : 4-Course Specialization (on Coursera)	Aug 2020
Deep Learning : 5-Course Specialization (on Coursera)	June 2020

## VOLUNTEER EXPERIENCE / LEADERSHIP

<b>Vice President</b> - Mathematics Society, University of Moratuwa Organized forums, intra-campus competitions, weekly quizzes and monthly tech talks	Sep 2020 - Aug 2021
<b>Examiner/ Laboratory Instructor/ Translator</b> - Sasip Institute, Sri Lanka Worked at the Sasip-Assignment-Centre which conducts mock examinations and provides laboratory facilities to conduct Physics practicals for G.C.E. Advanced Level students.	Oct 2017 - Sep 2018

*\*References available upon request*