

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 machine learning 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: Semester 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 - Present

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

1st Runners-up of the 3rd International Energy and Electricity Market Business Decision Simulation Competition, Organized by Batangas State University, Philippines	Nov 2021
Mahapola Merit Scholarship 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

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

TEACHING EXPERIENCE

Teaching Assistant

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

SKILLS

Programming Languages: Python, MATLAB, \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

Vice President - Mathematics Society, University of Moratuwa Organized forums, intra-campus competitions, weekly quizzes and monthly tech talks	Sep 2020 - Aug 2021
Examiner/ Laboratory Instructor/ Translator - 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*