L. THARINDU NIRMAL WICKREMASINGHE

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A recent graduate inspired by stochastic processes and theory of machine learning.
Recently, I have been intrigued by structured sparsity in compressive sensing, and computational imaging.

Research Interests:

| Signal Processing | Compressive Sensing |
| Statistical Learning Theory | Machine Learning |

EDUCATION

University of Moratuwa, Sri Lanka   **Cumulative GPA: 4.16/4.20**(First Class Hons.)   *2018-2023*
B.Sc.Engineering(Hons.)   Dean's List in all Semesters 1,2,3,4,5,6,7,8
Electronics and Telecommunications   Class rank **1**/118, Gold medal
Faculty of Engineering   Faculty rank **1**/980, Gold medal

Nalanda College, Colombo, Sri Lanka-Physical Science   *Graduated: 2018*
G.C.E. Advanced Level-university entrance examination 2017   4As /Z-score: 2.4985 (top 0.5%)

EXPERIENCE

Junior Lecturer- University of Moratuwa, Sri Lanka   *Dec 2023 - present*
Visiting Instructor- University of Moratuwa, Sri Lanka   *2022-2023*
Technical Consultant- IQ labs, Sri Lanka   *Fall 2023*
Remote Undergraduate Researcher- Centre for Advanced Imaging, Harvard University   *2022-2023*
Research Intern-School of Computing, University of Sydney, Australia   *2021-2022*

RESEARCH, PUBLICATIONS, SELECTED PROJECTS

Masked Optimisation with Selective Attention for Image Reconstruction   Nov 2022 - present
Undergraduate research, colaboration with Wadduwage lab, Harvard university   *Preprint*-🌐

- P. Somarathne, **T. Wickremasinghe**, A.Niwarthana, A. Thieshanthan, C. Edussooriya, D. Wadduwage; *MOSAIC: Masked Optimization with Selective Attention for Image Reconstruction* (pre-print)
- **T. Wickremasinghe**, A.Niwarthana, P. Somarathne, A. Thieshanthan, B. Weissbourd, C. Edussooriya, D. Wadduwage; *Lost in Translation: The Critical Role of Attention in Adaptive Image Reconstruction*, OSA Optica Imaging Congress, Cambridge, MA, 2023. (Extended abstract, Conference presentation)

Hierarchical Graph Neural Networks   May - Dec 2021
Self Initiated Undergraduate Research   *ICPR 2022 publication* 🌐

- A. Thieshanthan, A. Niwarthana, P. Somarathne, **T. Wickremasinghe** and R. Rodrigo,"HPGNN: Using Hierarchical Graph Neural Networks for Outdoor Point Cloud Processing," in 2022 26th International Conference on Pattern Recognition (ICPR), Montreal, QC, Canada, 2022 pp. 2700-2706.

Real-time Configuration of Intelligent Reflecting Surfaces   Feb - June 2021
Research competition- ICASSP 2021   *Video* ▶   *Report* ⧉   *Announcement*-🌐

- IEEE Signals Processing Cup 2021. Our solution was **awarded 1st** place, invited to present at **IEEE ICASSP 2021**-Toronto, Canada. Supervised by Dr. P. Dharmawansa

Real-time object detection   Fall 2020 - 2021
Undergraduate research   *IV Symposium 2022 publication* 🌐

- O. Jayasinghe, S. Hemachandra, D.Anhettigama, S. Kariyawasam, **T. Wickremasinghe**, C. Ekanayaka, R. Rodrigo, P.Jayasekara,"Towards Real-time Traffic Sign and Traffic Light Detection on Embedded Systems," 2022 IEEE Intelligent Vehicles Symposium (IV), Aachen, Germany, 2022, pp. 723-728.

Smart Breadboard for remote lab experiments October 2020 - Feb 2021
Self supervised Research and Innovation *Video and Report-* ◭

· Remote Access Breadboard to assist electronics laboratory work during lockdowns in the Pandemic. **1st place** at IEEE **PES** national design competition, Selected from IEE **CAS** student design competition 2020-2021, to represent Sri Lanka in the IEEE region 10 (Australia-Asia-Pacific).

SELECTED PROGRAMS, UNDERGRADUATE AWARDS

Gold medal for the most outstanding graduand in the faculty of Engineering, University of Moratuwa, Sri Lanka. For overall excellence in academics, extra curriculars, leadership, and civic service. *2023*

Pre-doctoral invitee, Cornell-Maryland Max Planck Research School (CMMRS), Germany. *August 2023*

ME-UYR 2023/24 Selected Young Researcher by the IEEE Signal Processing Society. *2023/24*

SGI 2023 Selected to audit the workshops of the Summer Geometry Initiative at MIT- MA,USA. *August 2023*

Fathima Fellow 2023/24, mentored by Mohammed El Banani on analysis in ML models. *Fall 2023*

Engineering Vacation Research Scholarhsip, under Anusha Withana at University of Sydney *2021/22*

ScholarX Fellow 2021/22, mentored by Vinoj Jayasundara, on ML concepts related to VAEs. *2021/22*

Mahapola Merit scholarship from the Sri Lankan goverment for the top 1% of University entrants *2018*

COMPETITIONS AND HACKATHONS

Runners up	Datathon 2023 - Inter University Data science competition	
	An anomally detection of suspicious activities on a website ◭	*SLIIT*
Champions	Datathon 2022 - Inter University Data science competition	
	A recommending system for a telecommunications company using Next Best Action. ◭	*SLIIT*
Champions	Data storm 2021- All island open Data science and analytics hackathon	
	Predict customer status and recommend the most suitable product. ◭	*RCUOM*
Runners up	Datathon 2020- Inter-University Data science competition	
	Forecast Coronavirus case counts and sector impact ◭	*SLIIT*
Champions	Belt and Road Electricity simulation competition 2020	
	Economical and energy efficient power distribution ◭	*Shanghai University of Power*
Champions	Decrypt 2019- Product Innovation Ideathon	
	Heart disease and emergency alerting app for drivers ◭	*University of Moratuwa*
Finalists	Mora Xtreme 2019,2020 - Algorithmic coding competitions	*IEEE SB UOM*
Finalists	Futurecast ideathon 2021 - for IOT products	*Arimac Lanka*

TEACHING AND PEER REVIEW EXPERIENCE

Visiting Instructor

EN4553 Machine Vision, UoM, Sri Lanka	*Fall 2023*
EN3551 Digital Signal Processing, UoM, Sri Lanka	*Fall 2023*
EN3160 Fundamentals of Image Processing and Machine Vision, UoM, Sri Lanka	*Fall 2023*
EN2412 Electronic Control Systems, UoM, Sri Lanka	*Fall 2022*
EN2091 Laboratory practise and projects, UoM, Sri Lanka	*Fall 2022*

Peer reviewer

ISCAS 2024 - Machine learning for Circuits and Systems track	*November 2023*
ACM Interactive Surfaces and Systems 2022 (ACM ISS)	*July 2022*

Peer review assistance

CVPR 2023 in the Machine Learning track for Dr. R.Rodrigo	*January 2023*
ICPR 2022 in the Graph Networks category for Dr. R.Rodrigo	*March 2022*

TECHNICAL SKILLS

Languages	Python, MATLAB, C++, LaTeX
Frameworks	Pytorch, Tensorflow
Software	Solidworks, Altium, Multisim, LTSpice, Webots

MOOCs

Mathematics for Machine Learning- Imperial College London- *(Coursera)*	*August 2020*
Neural Networks and Deep Learning- Deeplearning.AI *(Coursera)*	*July 2020*
Computational Thinking and Datascience- MIT 6.00.2 *(EdX)*	*June 2020*
Machine Learning- Stanford University *(Coursera)*	*May 2020*

VOLUNTEERING, LEADERSHIP AND EXTRA-CURRICULARS

Lecturing, Instructing and Community service

· Co-founder-Danuma Yathra Foundation, volunteering in rural schools of Sri Lanka, teaching highschool Mathematics and Science in schools with severe shortage of STEM teachers 2018-2020.
· Volunteer lecturer and instructor at astronomical society events 2018-2022.
· Assistant Manager, Knowldge Hub of ENTC 2021-2022.
· Member of the Rotaract Club - University of Moratuwa 2018-2023.
· Physics Laboratory Instructor for Advance-Level students at Lyceum International School- Colombo 2017-2018.

Featured Talks, Presentations, and Articles

· Moderator on the panel *"Future of AI in Engineering"* at EXMO-2023 Flagship Public Engineering Exhibition of the University of Moratuwa, July 2023.
· Poster Presentation at the International Conference on Communicating Astronomy with the Public (CAP) 2022.
· Article by Emil Bjornson, Lucio Marcerano; *Configuring an Intelligent Reflecting Surface for Wireless Communications: Highlights from the 2021 IEEE Signal Processing Cup student competition*, IEEE Signal Processing Magazine,IEEE Signal Processing Magazine,Volume 39,Issue 1, January 2022, pp 126-131.

SELECTED AWARDS PRIOR TO UNIVERSITY

The **Most Outstanding Student** award in both Junior and Senior categories for the graduating class of Nalanda College, for overall excellence in academics and extra curriculars.	*2011,2017*
The **Best performance in Academics** award for Physical Sciences, **Overall Best in Academics** in Nalanda College for the graduating class.	*2017*
2 Bronze medals - International Earth Science Olympiad (Individual and Field project), Brazil	*2015*
5 Bronze medals - International Junior Mathematics Olympiads, Indonesia	*2009-2011*
Gold medalist in the National Physics Olympiad *2017*, Bronze medalist in *2016*	
2 Gold, 1 Silver, and 1 Bronze medal in the National Astronomy and Astro-Physics Olympiads in Junior (2012/13) and Senior categories (2014/15)	
Class excellence with national rank **1** in the Royal Australian Chemical Institute Senior Quiz	*2016*

References available upon request