Hashan Kavinga Weerasooriya

PhD Student
School of Electrical and Computer Engineering
Purdue University

Dedicated, determined, well-organized, and energetic individual seeking opportunities to advance scientific research in signal processing and machine learning. Committed to introducing innovative ideas and scientific solutions for real-world challenges.

Personal Information

Permanent Residence

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Links

hashankavinga - Google Scholar
hashankavinga - Github
hashankavinga - Linkedin

Interest

- Signal Processing
- Machine Learning
- Remote Sensing
- Computational Imaging
- Single Photon LiDAR

Academic Qualification

Kingswood College

Feb 2001 - Aug 2014

General Certificate of Education Advanced Level Examination 2014
Combined Maths, Physics, and Chemistry.

Faculty of Engineering - University of Peradeniya

Dec 2015 – Jul 2020

BSc Engineering (Hons) in Electrical and Electronic Engineering
The degree is accredited by Washington Accord
GPA 3.95 out of 4.0 (First Class)

Electrical and Computer Engineering - Purdue University

Aug 2022 - Present

PhD Student
cGPA 3.94 out of 4.0

Professional Experience

International Construction Consortium (Pvt) Ltd

Engineering Intern (Mechanical, Plumbing and Electrical) Oct 2017 - Jan 2018
QA/QC Engineering, Engineering Design

Ceylon Electricity Board

Engineering Intern (Electrical) Mar 2019 - May 2019
System Control, Generation, Transmission, Distribution, Communication and Design

Faculty of Engineering - University of Peradeniya

Temporary Instructor, Temporary Lecturer Aug 2020 - July 2022
Communication and Information Laboratory

Electrical and Computer Engineering - Purdue University

Research Assistant - COGNISENSE May 2023 - Present
Semiconductor Research Corporation: JUMP 2.0 - COGNISENSE

Electrical and Computer Engineering - Purdue University

Teaching Assistant Aug 2022 - May 2023 & Aug 2024 - Present
ECE 20001: Electrical Engineering Fundamentals I
ECE 53800: Digital Signal Processing I

Projects and Research

Hyperspectral Imaging for Remote Sensing and Applications 2019 - 2022

Journal Papers

Constrained Nonnegative Matrix Factorization for Blind Hyperspectral Unmixing Incorporating Endmember Independence, in IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (JSTARS), November 2021.

Transmittance Multispectral Imaging for Reheated Coconut Oil Differentiation, in IEEE Access, January 2022.

Quantitative Assessment of Adulteration of Coconut Oil Using Transmittance Multispectral Imaging, in Journal of Food Science and Technology - Springer, February 2023.

GAUSS: Guided encoder - decoder Architecture for hyperspectral Unmixing with Spatial Smoothness, in European Journal of Remote Sensing 2023.

Conference Papers

Transmittance Multispectral Imaging for Edible Oil Quality Assessment, in Imaging and Applied Optics Congress, OSA Technical Digest (Optical Society of America, 2020), paper JW5C.8., Vancouver, Canada, June 2020.

Convolutional Autoencoder for Blind Hyperspectral Image Unmixing, in proceedings of 15th IEEE International Conference on Industrial and Information Systems (ICIIS-2020), IIT Ropar, India, November 2020.

Patent

A Multispectral Imaging System to Measure Transmittance Spectrum - Patent application No 20936 (Granted), in 2021.

Single Photon LiDAR Sensing, Simulation, Compression and Reconstruction 2023 - Present

Conference Papers

Resolution Limit of Single-Photon LIDAR, IEEE/CVF Conference on Computer Vision and Pattern Recognition 2024.

Joint Depth and Reflectivity Estimation using Single Photon LiDAR, IEEE/CVF Conference on Computer Vision and Pattern Recognition 2025. (Under review)

Analysis and Improvement of Rank-Ordered Mean Algorithm in Single-Photon LiDAR, in 26th IEEE International Workshop on Multimedia Signal Processing, 2024.

Parametric Modeling and Estimation of Photon Registrations for 3D Imaging, in 26th IEEE International Workshop on Multimedia Signal Processing, 2024

Single Photon LiDAR Compression: An Overview, in 66th IEEE International Midwest Symposium on Circuits & Systems, 2023.

Ongoing Research

- ✔ Simulation and Reconstruction of SP-LiDAR through scattering media.
- ✔ Performance evaluation of SP-LiDAR Imaging.
- ✔ Construction of an SP-LiDAR Imaging System.

Skills

Programming	▸ MATLAB ▸ Python
Frameworks & Libraries	▸ Scikit-learn ▸ Matplotplib ▸ TensorFlow ▸ NumPy ▸ Pytorch ▸ Pandas
CAD Software	▸ CorelDraw ▸ Autodesk AutoCAD
Design & Simulator Software	▸ Proteus ▸ AWR - Microwave Office ▸ Autodesk Eagle

Achievements

- W.P. Jayasekara Prize for the best undergraduate project in the Electrical and Electronic Department. (2020)
- Prof. E.F. Bartholameusz Endowment Award for the best undergraduate project in Engineering Mathematics. (2020)

Reference

Prof. Stanley H. Chan
School of Electrical and Computer Engineering
Purdue University
West Lafayette