

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

🏠 2550 Yeager Rd,
Apt 4-3,
West Lafayette,
Indiana,
USA.

E-mail

✉ hashankavinga@gmail.com
✉ hweeraso@purdue.edu

Telephone

☎ +1 765 767 0360

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 3.95 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 - Dec 2024
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 (ICIS-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 ▶ Matplotlib ▶ 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