

PANDULA THENNAKOON

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INTERESTS

I am interested in using artificial intelligence, machine learning, and signal processing techniques for Industrial Applications and Generative AI research.

EDUCATION

Bachelor of Science in Engineering (BSc. Eng) (2019 November-2024 August)

University of Peradeniya

Specialization: Electrical and Electronic Engineering

GPA: 3.95/4.00

HIGHLIGHTED ACHIEVEMENTS

- **Bronze medal from the 2018 Physics Olympiad (National level)**
- **2022 Professor Bartholomeusz Award** for excelling in Engineering mathematics awarded by Alumni Association of Faculty of Engineering, University of Peradeniya
- Achieved **6th place nationally at Predicta 1.0 (2024 October)** organized by the IEEE student branch University of Peradeniya.
- **2024 Professor Bartholomeusz Award (December)** for best Engineering mathematics project awarded by Alumni Association of Faculty of Engineering, University of Peradeniya
- **Outstanding paper award at ICAC 2024 (December)** for the paper titled “Unveiling Motion Patterns through Unsupervised Clustering”
- Secured the **NVIDIA Academic Grant** to support research in “Implicit Neural Representations” at Multidisciplinary AI Research Center(MARC), University of Peradeniya.
- Received the **W.M.G Fernando Prize for outstanding performance in Electronic Communications** at General Convocation, university of peradeniya(2025).

PUBLICATIONS

[1] Unveiling Motion Patterns through Unsupervised Clustering | [DOI](#)

- In IEEE Xplore

Pandula Thennakoon, Ravindu Rodrigo, Kalana Jayasooriya, Thiksiga Ragulakaran; Roshan Godaliyadda, Vijitha Herath, Mervyn Parakrama Ekanayake, Janaka Ekanayake

Contribution: Conceptualization, Methodology, Formal analysis, Code, Validation, Writing—Original Draft, Review & Editing.

[2] AVSim-Realistic Simulation Framework for Airborne and Vector-Borne Disease Dynamics | [DOI](#)

- In Cornell Archives
- Submitted to IEEE Transactions on Systems Man and Cybernetics.

Pandula Thennakoon, Mario De Silva, M. Mahesha Viduranga, Sashini Liyanage, Roshan Godaliyadda, Mervyn Parakrama Ekanayake, Vijitha Herath, Anuruddhika Rathnayake, Ganga Thilakarathne, Janaka Ekanayake, Samath Dharmarathne

Contribution: Conceptualization, Methodology, Formal analysis, Code, Validation, Writing–Original Draft, Review & Editing.

[3] BandRC: Band Shifted Raised Cosine Activated Implicit Neural Representations | [DOI](#)

- In Cornell Archives
- Submitted to The International Conference on Learning Representations (ICLR).
- Pandula Thennakoon, Avishka Ranasinghe, Mario De Silva, Buwaneka Epakanda, Roshan Godaliyadda, Parakrama Ekanayake, Vijitha Herath

Contribution: Conceptualization, Methodology, Formal analysis, Code, Validation, Writing–Original Draft, Review & Editing.

SELECTED PROJECTS

Agent-Based Modeling.

Utilizing GPS data to model human motion with the leverage of machine learning methods and probability models in agent-based models.

Concepts used: Agent-Based Modeling (ABM), Unsupervised Clustering methods such as Spectral Clustering and DBSCAN, Markov models, Graph Algorithms & Data Structures

Implicit Neural Representations

INRs are a relatively new branch of deep learning emerging recently in many fields. This project aims to research deep into INR methods to uncover their untapped potential. Funded by NVIDIA Academic Grant Program.

Concepts used: Deep Learning, Fourier Analysis, Conditional neural networks with prior knowledge, regularization techniques, Chebyshev Polynomials, Neural Tangent Kernels, Complex analysis, Wirtinger derivatives.

Non Intrusive Load Monitoring.

Using signal processing and deep learning techniques to monitor the power consumption of individual household/industrial appliances using aggregated active power consumption.

Concepts used: Deep Learning, Karhunen-Loeve Transformation, Bayesian Reasoning in Deep Neural Networks.

Impurity Detection in Glass Bottles using Computer Vision.

Identification of foreign objects(glass shards, dust and other impurities) inside glass bottles in industrial production lines.

Concepts used: Deep Learning, Computer Vision

RESEARCH EXPERIENCE

Research Engineer at Farbe Technologies (From September 2024 to Present)

Under Prof. Vijitha Herath, Prof. Roshan Godaliyadda, and Prof. Parakrama Ekanayake from Department, Department of Electrical and Electronics Engineering, University of Peradeniya.

Leading student research assistant at,

- AI4COVID Agent-Based Model research group, 2023 August - 2025 January
 - Implicit Neural Representations (INR) research group, 2024, August - Present
 - Non-Intrusive Load Monitoring (NILM) research group, 2024 October -Present
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INDUSTRIAL EXPERIENCE

Intern at MAGICBIT (2022 May - 2020 July)

I have worked as an intern at Magicbits(PVT)LTD. I have gained experience in embedded systems design, circuit design, and C programming while working there. I have worked as a volunteer teacher at SLASSCOM TECHKIDS under Magicbit during my internship.

Intern at Vega Innovations (2023 July - 2023 October)

During my three month internship at Vega Innovations(PVT)LTD, I gained experience in automotive electronics design. I engaged in CAN protocol troubleshooting, commercial-grade embedded system designing, PCB design and soldering.

Research Engineer at Farbe Technologies (2024 September - Present)

After graduation, I have worked as a Research Engineer at Farbe Technologies under the guidance of Prof. Vijitha Herath, Prof. Roshan Godaliyadda, and Prof. Parakrama Ekanayake from Department, Department of Electrical and Electronics Engineering, University of Peradeniya. During this period, I have engaged in several Industrial-research oriented projects.

TECHNICAL SKILLS

Programming languages: Python, C, assembly, MATLAB

Libraries and Packages: scikit-learn, OpenCV, Pandas, PyTorch, Jax, TensorFlow, SciPy

Other: Latex, Git, PCB design and Soldering skills, embedded systems design (Arduino, ESP), experience with automotive MCUs(SPC58 family).

SERVICES

Public Speaker - AI Workshops

Conducted workshops on agent-based modeling for school students through the Multidisciplinary AI Research Center at the University of Peradeniya.

Volunteer Teacher - SLASSCOM TECHKIDS

Techkids is a tech initiative by SLASSCOM, which encourages STEM education in Sri Lanka.

REFEREES

Prof. Roshan Godaliyadda,
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