


PAVINDRAN VELALAGAN

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EDUCATION

- **University of Peradeniya** June 2023 - Present
BSc (Hons) in Computer Engineering - 3rd year undergraduate Kandy, Sri Lanka
 - **Societies:** IEEE Computer Society, AerogenZ Aviation Club, Perabeats Media Society

EXPERIENCE

- **Cogntix**  August 2025 - October 2025
ML Engineering Apprentice (Internship) Hybrid
 - Worked on text extraction techniques for complex, multi-column CV layouts.
 - Analyzed and tested methods for AI-based CV filtering to explore better candidate matching.
 - Contributed to the development of a document classification model to validate user uploads (CV vs. non-CV).
 - Gained hands-on experience with cloud deployment by building and hosting a CV parsing application using AWS (EC2, Route 53, Lightsail, Lambda).
- **University of Peradeniya** Nov 2024 - Feb 2025
Casual Instructor (Part-time) Kandy, Sri Lanka
 - Assisted undergraduates in the CO1010 Programming for Engineers course.
 - Covered Python fundamentals through Object-Oriented Programming (OOP), focusing on practical problem-solving and coding confidence.

PROJECTS

- **Smart IV Retrofit Controller (Group Project)** Jan 2026 - Present
Rust/Tauri, ESP32, MQTT, C++, Hardware Design, IoT
 - Developed a closed-loop medical device to bridge the gap between inaccurate gravity-fed drips and costly volumetric infusion pumps.
 - Implemented a stepper motor mechanism with an IR drop counter to monitor and automatically regulate flow rate.
 - Integrated the IoT connectivity via MQTT to a centralized desktop ward dashboard for real-time monitoring.
 - Contributed to the development of desktop app using Rust/ Tauri and developed the firmware for edge device.
- **Image Processing Learning Lab - A Desktop App** Nov 2025 - Dec 2025
Python, PyQt5, OpenCV, NumPy, Matplotlib
 - Developed an offline desktop lab application for the Digital Image Processing course.
 - Implemented visualization for syllabus-aligned operations including Histograms, K-Means segmentation, Fourier Transform, and simple CNNs.
 - Integrated a "Learn This" panel providing intuition, formulas, and real-world uses alongside live code execution.
- **Event Management System - Full Stack Application (Group Project)** Aug 2025 - Nov 2025
React, TypeScript, Node.js (Fastify), PostgreSQL, Google Gemini
 - Built an API-first monorepo architecture with role-based JWT authentication and Zod schema validation.
 - Integrated an AI-driven "Budget Bot" powered by Google Gemini to analyze expenses and provide spending insights.
 - Features include automatic database bootstrapping, mock data seeding, and expense analytics dashboards.
- **Data Analytics Web App (YGC Season 7 Finalist)** Apr 2018 - Jun 2018
Python (Django), JavaScript, PHP, MySQL
 - Solo development of a web app allowing CSV/Excel data import and generation of complex graphs.
 - Selected as a finalist in the Yarl Geek Challenge 2018.

- [J.1] Pavindran Velalagan, et al. (2025). **ViT-RoT: Vision Transformer-Based Robust Framework for Tomato Leaf Disease Recognition**. *MDPI - AgriEngineering*. Published Jun 10, 2025.

SKILLS

- Programming Languages: Python, JavaScript, C, SQL
- Web Technologies: React.js, Node.js, HTML/CSS, REST APIs
- Hardware & Embedded: RaspberryPi, ESP32
- Tools & Cloud: AWS (EC2, Lambda, Lightsail), Git/GitHub, VS Code
- Data Science/ML: OpenCV, NumPy, Google Gemini API

ACHIEVEMENTS

- **Finalist - SLIoT Challenge 2026** Feb 2026
University of Moratuwa, SLT-MOBITEL, IESL
 - Selected as a finalist in the national IoT competition with the project Smart IV.
- **Finalist - Startup Spark 2024** Oct 2024
IESL Student Chapter, University of Moratuwa
 - Selected as a finalist for the Intelligent Traffic Monitoring System (ITMS) project with Team Zephyrus.
 - Proposed an AI-driven solution with dynamic traffic signal control and emergency vehicle prioritization.
- **Finalist - Yarl Geek Challenge (Season 7)** 2018
Yarl IT Hub
 - Selected as a finalist for the Data Analytics Web Application project.

VOLUNTEER EXPERIENCE

- **Invigilator** Jan 2026
ICPC Sri Lanka Peradeniya Regional Contest 2025/26
 - Served as an invigilator for the first-ever ICPC Regional programming contest hosted in Sri Lanka.
 - Monitored the contest floor representing the Computer Engineering department, ensuring strict adherence to global ICPC standards and maintaining a fair, focused environment for competitors.
- **Webmaster** Nov 2025 - Present
IEEE CS Student Chapter - UoP
 - Manage and maintain the chapter's web presence.
 - **Previous Role:** Marketing Team Member (Jul 2024 - Nov 2025). Contributed to graphic design and promotional campaigns for events like AlgoForge.
- **Marketing and Public Relations Coordinator** Jan 2025 - Jan 2026
AerogenZ
 - Coordinating marketing efforts for science and technology initiatives.

CREATIVE EXPERIENCE

- **Founder & Photographer** Sept 2023 - Present
Vivid Dreams
 - Established and operate a freelance photography brand specializing in portraiture and event photography.
- **Videography Team (Videographer / Video Editor / Crew)** Dec 2023 - Jan 2026
Perabeats
 - Contributed as a Video Editor and Videographer (Dec 2023 - Jan 2025) and Crew Member (Jan 2025 - Jan 2026).