

# DEEGHAYU SUWAHAS ADHIKARI

R&D Engineer @ AltaVision Solar  
Visiting Lecturer @ GWUIM

🌐 deeghayu.netlify.app    ✉ Deeghayuadhihari01@gmail.com  
☎ +94 70 220 7070    🌐 github.com/DeegayuA  
📍 Kadawatha, Sri Lanka    🔗 in/deeghayu

## SUMMARY

AI & IoT Engineer building end-to-end intelligent systems that integrate hardware, software, and data-driven intelligence. Experienced in embedded firmware, IoT prototypes, cloud-based deep learning models, and scalable web platforms. Skilled in machine learning, embedded systems, electronics design, and full-stack development. Proven ability to lead projects from concept to production and deliver high-impact, user-centric solutions through interdisciplinary collaboration.

## TECHNICAL SKILLS

**Languages:** Python (Advanced), C++ (Proficient), SQL, TypeScript/JavaScript  
**AI & Data Science:** PyTorch, TensorFlow, Scikit-learn | Pandas, NumPy, OpenCV, Matplotlib | Docker, MLflow, GitHub Actions, AWS SageMaker  
**Cloud & Infrastructure:** AWS, GCP | Terraform, Docker, Git, CI/CD | React, Next.js, Node.js, REST APIs, Nginx | SQLite3, MongoDB, Firebase  
**Embedded Systems & IoT:** ESP32, Raspberry Pi, Arduino, PLCs | Firmware (C++), PlatformIO, FreeRTOS | MQTT, OPC UA, MODBUS, LoRa, Bluetooth/BLE

## EDUCATION

2025.05 - 2026	<b>Master in Data Science and AI (Expected)</b>	Faculty of Engineering, University of Moratuwa
2024.07 - 2025.08	<b>Master in Information Technology</b> GPA: 3.9/4.0 (Graduation Pending)	Faculty of Science, University of Kelaniya
2021.07 - 2024.04	<b>BSc in Physical Science (CS, Electronics, Physics)</b> GPA: 3.31/4.0 (Graduated 26.04.2025)	Faculty of Science, University of Kelaniya

## Certificates & Trainings

11/2025	<b>AWS Academy Graduate – Machine Learning for Natural Language Processing</b>	Amazon Web Services (AWS)
11/2025	<b>AWS Academy Graduate – Generative AI Foundations</b>	Amazon Web Services (AWS)
06/2025	<b>AWS Academy Graduate – Data Engineering</b>	Amazon Web Services (AWS)
06/2025	<b>Fundamentals of Accelerated Data Science</b>	NVIDIA
10/2024	<b>Certificate – JavaScript Algorithms and Data Structures (Beta)</b>	freecodecamp.org
11/2023	<b>Certificate – Machine Learning with Python</b>	freecodecamp.org
06/2023	<b>Certificate – Responsive Web Design</b>	freecodecamp.org

## EXPERIENCE

03.2025 - (Current)	<b>Research and Development Engineer (IoT)</b> <b>Key Responsibilities:</b> <ul style="list-style-type: none"><li>- Engineered and deployed web-based dashboards and control systems for real-time power inverters and other device monitoring and control, enhancing operational reliability and visibility.</li><li>- Led design and development of IoT prototypes with sensors, ESP32, and communication modules.</li><li>- Collaborated with cross-functional teams on system architecture, field testing, and performance optimisation to ensure successful product deployment.</li></ul>	AltaVision, Homagama, Sri Lanka
09.2025 - 01.2026	<b>Visiting Lecturer, Department of Technology</b> <b>Modules Taught:</b> <ul style="list-style-type: none"><li>- BHBM 21061 (P) – Web Application Development   HICT 33103 – Mobile Application Development</li><li>- HICT 41052 – Artificial Intelligence   HICT 41061 (P) – Artificial Intelligence (Practical)</li></ul>	Gampaha Wickramarachchi University, Sri Lanka
05.2024 - 03.2025	<b>Teaching and Research Assistant, Department of Physics and Electronics</b> <b>Key Contributions:</b> <ul style="list-style-type: none"><li>- Developed/optimized algorithms for real-time sensor data analysis supporting faculty research.</li><li>- Designed/executed IoT projects to improve system performance and data collection.</li><li>- Assisted in courses such as embedded systems, signal processing, IoT, and computer architecture.</li><li>- Mentored students in hands-on projects and contributed to publications at ICAPS.</li><li>- Developed and conduct lab exercises and content to enhance active learning.</li></ul>	University of Kelaniya, Sri Lanka
2021 - 2023	<b>Freelance Web Developer</b> <b>Key Contributions:</b> <ul style="list-style-type: none"><li>- Developed responsive, user-centric websites/apps with basic HTML, CSS, JS to React and Next.js.</li><li>- Ensured WCAG 2.2 compliance, enhancing accessibility for diverse users.</li><li>- Collaborated with clients to deliver scalable, secure, high-performance solutions.</li><li>- Optimised app performance with techniques such as lazy loading, code splitting, and SEO.</li></ul>	Remote, Freelancing

## PROJECTS

---

2025	<b>Fully Customizable Ready to Deploy SCADA for Renewable Power Plants</b> <span style="float: right;">Work Project</span> <ul style="list-style-type: none"><li>- Built offline/online SCADA platform for renewable energy plants, enabling code-free configuration.</li><li>- Developed a dynamic React Flow UI for creating custom digital twin dashboards.</li><li>- Integrated OPC UA for real-time data visualization and control of PLCs and industrial hardware.</li><li>- <b>Tech Stack:</b> Next.js, TypeScript, React Flow, OPC UA, Tailwind CSS, Shadcn/UI.</li><li>- <b>GitHub:</b> <a href="https://github.com/DeegayuA/AV-SCADA-RPP">https://github.com/DeegayuA/AV-SCADA-RPP</a></li></ul>
2025	<b>NIC Validation &amp; Location Finder</b> <span style="float: right;">Personal Project</span> <ul style="list-style-type: none"><li>- Developed a scalable microservices-based platform for real-time NIC validation and location finding.</li><li>- Integrated Firebase Realtime DB for instant synchronisation and efficient batch processing.</li><li>- Optimised for data science workflows and high-performance processing.</li><li>- <b>Tech Stack:</b> Microservices, Firebase Realtime DB, Batch Processing, REST APIs.</li><li>- <b>GitHub:</b> <a href="https://github.com/DeegayuA/NicValidation">https://github.com/DeegayuA/NicValidation</a></li></ul>
2024	<b>LifeSight: Accessibility Tool for Visually Impaired Users</b> <span style="float: right;">Master in IT Project</span> <ul style="list-style-type: none"><li>- An AI-powered tool designed to assist visually impaired individuals with daily tasks.</li><li>- Includes real-time object recognition using computer vision and text-to-speech conversion.</li><li>- Focused on accessibility features and personalised user experience.</li><li>- <b>GitHub:</b> <a href="https://github.com/DeegayuA/lifesight2">https://github.com/DeegayuA/lifesight2</a></li></ul>
2023 - 2024	<b>GreenWing: Quad-Copter-based Intelligent Smart Irrigation System</b> <span style="float: right;">Final Year Electronics Research Project</span> <ul style="list-style-type: none"><li>- Developed a smart irrigation system using AI and sensor technologies.</li><li>- Integrated real-time weather data, machine learning algorithms, and IoT connectivity.</li><li>- <b>GitHub:</b> <a href="https://github.com/DeegayuA/GreenWing">https://github.com/DeegayuA/GreenWing</a></li></ul>
2023	<b>AI-based Assignment-Solving Android App: SnapLearn</b> <span style="float: right;">Android Project</span> <ul style="list-style-type: none"><li>- Developed an Android app using Gemini AI to provide comprehensive assignment-solving assistance.</li><li>- Utilised Kotlin, Jetpack Compose, and integrated real-time OCR using ML Kit.</li><li>- <b>GitHub:</b> <a href="https://github.com/DeegayuA/SnapLearn">https://github.com/DeegayuA/SnapLearn</a></li></ul>
2022 - 2023	<b>Deep Learning Mini Projects</b> <span style="float: right;">Learning Projects</span> <ul style="list-style-type: none"><li>- Implemented a series of deep learning models, including:<ul style="list-style-type: none"><li>- <b>Sinhala Character Recognition:</b> Trained RNN-based image classification model.</li><li>- <b>Stock Price Prediction:</b> Built an LSTM-based model for predicting stock prices.</li><li>- <b>English to Sinhala Translation:</b> Developed a translation model using transformers.</li><li>- <b>Car Price Prediction:</b> Built a machine learning model using Random Forest for predicting car prices.</li></ul></li></ul>

## ACHIEVEMENTS AND AWARDS

---

02/2024	<b>Participation - UWU ROBOT BATTLES 2.0: Death Race (2024)</b> <span style="float: right;">Uva Wellassa University, Sri Lanka</span> <p>Competed in UWU Robot Battles 2.0: Death Race, showcasing robotics skills and teamwork.</p>
11/2023	<b>Second Runner Up - Sky of Icarus Custom-Drone competition - 2023</b> <span style="float: right;">IESL Young Member Section, South Eastern University, Sri Lanka</span> <p>2nd runner-up in the Sky of Icarus 2023 drone competition, showcasing drone skills and teamwork.</p>
04/2022	<b>Best of the Class   Final Year   School</b> <span style="float: right;">Gurukula National College, Kelaniya</span> <p>Achieved Class Proficiency in the final year of high school, reflecting academic excellence.</p>
11/2018	<b>Merit Certification   Open Day Robotic Competition</b> <span style="float: right;">NERDC, Sri Lanka</span> <p>Achieved a Merit Certification at the District Level Open Day Robotic Competition.</p>
06/2018	<b>Participation   SLIIT GAMEFEST 2K18</b> <span style="float: right;">SLIIT</span> <p>Showcased involvement in SLIIT GAMEFEST 2K18, a game development competition.</p>

## LEADERSHIP AND TEAMWORK

---

2021 - 2024	<b>Steam - VidE</b> <span style="float: right;">Media Unit, FOS, UOK</span> <p>Main Event Coordinator, VidE - 21/22, Head of Photography 20/21, Member 19/20</p>
2022 - 2023	<b>Inventors Club</b> <span style="float: right;">University of Kelaniya</span> <p>Vice President 21/22, Junior Treasurer 20/21</p>
2022 - 2023	<b>E-Waste Project</b> <span style="float: right;">Electronic Development and Innovation Center   University of Kelaniya</span> <p>Junior Electronics Lead 20/21, Electronics Lead 21/22</p>

## PUBLICATIONS

---

- Abstract MO-37 **Autonomous Quadcopter-based Intelligent Irrigation System for Enhancing Crop Care**  
International Conference on Applied and Pure Sciences, University of Kelaniya, Sri Lanka. 2024  
Vimansa W. A. H.\* , **Adhikari A. M. N. D. S.**, Rathnayaka R. M. P. B., Dilshan P. K. S. I., Attanayake A. M. V. A., Randeniarachchi R. A. N. D., Hemal S. B. N. H., Piyumal P. L. A. K., Kumarage W. G. C.  
- Developed an autonomous quadcopter system for smart irrigation, leveraging real-time monitoring for improved water usage and crop growth.  
**Drone Programming, ESP32, ML, Battery Management, Solar Power, Data Fusion, Weather API, YOLOv8, Intelligent Algorithms, web app..**
- Abstract MP-14 **Wireless Pager System for Enhancing Emergency Communication in Hospital Environment**  
International Conference on Applied and Pure Sciences, University of Kelaniya, Sri Lanka. 2024  
Gunarathna T. G. L.\* , **Adhikari A. M. N. D. S.**, Bandara K. D. Y., Gunawardana K. D. B. H., Seneviratne J. A., Perera M. H. M. T. S.  
- Implemented a LoRa pager system for efficient emergency communication, enhancing responsiveness in hospital settings.  
**LoRa, ESP32, Raspberry Pi, 433 MHz modules, local/cloud storage.**
- Abstract SO-09 **A Cost-effective and Adaptable Queue Management System to Increase Efficiency in Patient Queue Management**  
International Conference on Applied and Pure Sciences, University of Kelaniya, Sri Lanka. 2024  
**Adhikari A. M. N. D. S.**, Gunarathna T. G. L., Bandara K. D. Y., Gunawardana K. D. B. H., Seneviratne J. A., Perera M. H. M. T. S.  
- Designed a QR-based, offline queue system to optimise patient flow at the National Institute of Infectious Diseases, Sri Lanka.  
**Queue Management, IoT, Data Encryption, QR, Cloud, Accessibility, Low Battery Indicators, Load Balancing, Power Efficiency.**

## LANGUAGES

---

**Sinhala** - Native,

**English** - Intermediate,

**German** - Beginner.

## INTERESTS

---

- **Technology:** Web Development, AI/ML, IoT, Edge Computing
- **Research:** IoT, Electronic Designs, Computer Vision, Natural Language Processing
- **Social Impact:** Accessibility Innovation, Design for All, Inclusivity in Tech, Volunteering at University
- **Creative Hobbies:** Cinematography, DIY Electronics Projects, Arduino Raspberry Pi
- **Sports:** Chess, E-Sports
- **Personal Growth:** Reading,

## REFERENCE

---

**Professor A. L. A. K. Ranaweera**  
Professor,  
Department of Physics and Electronics,  
University of Kelaniya.  
arunaran@kln.ac.lk  
+94 (0)77 7 179 201

**Dr. J. A. Seneviratne**  
Senior Lecturer (Grade II),  
Department of Physics and Electronics,  
University of Kelaniya.  
jehans@kln.ac.lk  
+94 (0)71 822 6117



---

**Deeghayu Suwahas Adhikari**

15/11/2025