DEEGHAYU SUWAHAS ADHIKARI

Graduated Teaching Assistant
Voluntary Research Assistant @ UOK

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SUMMARY

A graduate student in IT with a strong foundation in electronics, web development, IoT, and AI technologies. Experienced in building AI-enabled web tools for accessibility, with expertise in machine learning, computer vision, real-time communication systems, and embedded electronics.

Passionate about developing scalable, user-centric solutions to empower differently-abled individuals. Skilled in project management, algorithm optimization, electronics design, and leading cross-functional teams to deliver innovative, impactful technology.

TECHNICAL SKILLS

Languages:
C++, Python, JavaScript, TypeScript, HTML, CSS

Frameworks/Tools:
React, Next.js, Radix UI, Tailwind CSS, Git, GitHub, VSCode, PyCharm, WebSockets, Vercel, Google Gemini, Google Cloud Vision API

Specialties:
Web Development, AI and Machine Learning, IoT Systems, Embedded Systems, Real-Time Systems, Accessibility Solutions, Algorithm Optimization

EDUCATION

Ongoing	**Master in Information Technology (Reading)**	**University of Kelaniya**
2021 - 2024	**BSc in Physical Science (Computer Studies, Electronics and Physics)** With a 2nd class upper division pass	**University of Kelaniya**
06/2023	**Certificate - Responsive Web Design**	**www.freecodecamp.org**
11/2023	**Certificate - Machine Learning with Python**	**www.freecodecamp.org**
10/2024	**Certificate - JavaScript Algorithms and Data Structures (Beta)**	**www.freecodecamp.org**

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 optimize 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.

EXPERIENCE

05.2024 - (Current) **Voluntary Research Assistant, Department of Physics and Electronics** **University of Kelaniya, Sri Lanka**
Key Contributions:
- Developed machine learning algorithms for real-time data analysis and decision-making.
- Conducted IoT projects, integrating sensor technologies to enhance system performance.
- Conducted research in AI, IoT, and data analytics for faculty projects and publications.

07.2024 - (Current) **Graduate Teaching Assistant, Department of Physics and Electronics** **University of Kelaniya, Sri Lanka**
Key Contributions:
- Assisted in courses such as embedded systems, signal processing, IoT, and computer architecture.
- Mentored students through hands-on projects, offering technical support and guidance.
- Developed content and lab exercises to promote active learning.

2021 - 2023.12 **Freelance Web Developer** **Remote, Freelancing**
Key Contributions:
- Developed responsive, user-centric web-sites/apps with basic HTML, CSS, JS to React and Next.js.
- Ensured WCAG 2.2 compliance, enhancing accessibility for diverse users.
- Collaborated with clients to deliver scalable, secure, high-performance solutions.
- Optimized app performance with techniques such as lazy loading, code splitting, and SEO.

PROJECTS

2024 (Ongoing) **LifeSight: Accessibility Tool for Visually Impaired Users** **Master in IT Project**
- An AI-powered tool designed to assist visually impaired individuals with daily tasks.
- Includes real-time object recognition using computer vision and text-to-speech conversion.
- Focused on accessibility features and personalized user experience.
- **GitHub:** https://github.com/DeegayuA/lifesight2.

2024 **Queue Management System for Healthcare** **Project by EDIC, UOK**
- Designed a customizable queue system to enhance patient flow at healthcare institutions.
- Implemented an offline, scalable, low-battery system with cloud synchronization.
- **GitHub:** https://github.com/DeegayuA/idh.

2023 - 2024 **GreenWing: Quad-Copter based Intelligent Smart Irrigation System** **Final Year Electronics Research Project**
- Developed a smart irrigation system using AI and sensor technologies.
- Integrated real-time weather data, machine learning algorithms, and IoT connectivity.
- **GitHub:** https://github.com/DeegayuA/GreenWing.

2023 **AI-based Assignment-Solving Android App: SnapLearn** **Android Project**
- Developed an Android app using Gemini AI to provide comprehensive assignment-solving assistance.
- Utilized Kotlin, Jetpack Compose, and integrated real-time OCR using ML Kit.
- **GitHub:** https://github.com/DeegayuA/SnapLearn.

2022 - 2023 **Deep Learning Mini Projects** **Learning Projects**
- Implemented a series of deep learning models including:
- **Sinhala Character Recognition**: Trained RNN-based image classification model.
- **Stock Price Prediction**: Built an LSTM-based model for predicting stock prices.
- **English to Sinhala Translation**: Developed a translation model using transformers.
- **Car Price Prediction**: Built a machine learning model using Random Forest for predicting car prices.

ACHIEVEMENTS AND AWARDS

02/2024 **Participation - UWU ROBOT BATTLES 2.0: Death Race (2024)** **Uva Wellassa University, Sri Lanka**
Competed in UWU Robot Battles 2.0: Death Race, showcasing robotics skills and teamwork.

11/2023 **Second Runner Up - Sky of Icarus Custom-Drone competition - 2023** **IESL Young Member Section, South Eastern University, Sri Lanka**
2nd runner-up in Sky of Icarus 2023 drone competition, showcasing drone skills and teamwork.

04/2022 **Best of the Class | Final Year | School** **Gurukula National College, Kelaniya**
Achieved Class Proficiency in the final year of high school, reflecting academic excellence.

11/2018 **Merit Certification | Open Day Robotic Competition** **NERDC, Sri Lanka**
Achieved a Merit Certification at the District Level Open Day Robotic Competition.

06/2018 **Participation | SLIIT GAMEFEST 2K18** **SLIIT**
Showcased involvement in SLIIT GAMEFEST 2K18, a game development competition.

LEADERSHIP AND TEAMWORK

2021 - 2024	**Steam - VidE**	Media Unit, FOS, UOK

Event Coordinator, VidE - 21/22,
Head of Photography 20/21,
Member 19/20

2022 - 2023	**Inventors Club**	University of Kelaniya

Vice President 21/22,
Junior Treasurer 20/21

2022 - 2023	**E-Waste Project**	Electronic Development and Innovation Center | University of Kelaniya

Junior Electronics Lead 20/21,
Electronics Lead 21/22

2021 - 2022	**Astronomy and Space Science Association**	University of Kelaniya

Co-Coordinator 20/21,
Main Web Developer 19/20 and 20/21,
Committee Member 19/20

2022	**Statistic and Computer Science Students' Association**	University of Kelaniya

Editor 20/21

LANGUAGES

Sinhala - Native,   **English** - Intermediate,   **German** - Beginner.

INTERESTS

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

REFERENCE

Professor A. L. A. K. Ranaweera
Professor,
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University of Kelaniya.
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Dr. J. A. Seneviratne
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Deeghayu Suwahas Adhikari

23/01/2025