

K.T. Yasas Mahima

Canberra, Australia

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PROFESSIONAL SUMMARY

- Computer science academic and research engineer with a strong foundation in AI, computer vision, data engineering, and software engineering.
- Brings industry and academic experience in research & development and teaching, along with ongoing PhD research in computer vision and AI.
- Experienced in supervising and mentoring undergraduate students, providing guidance on research projects, technical development, and academic growth.
- Strong collaborator and communicator with demonstrated leadership and teamwork skills, experienced in working effectively with domestic and international organizations.
- Served as the Public Relations Officer for the ARC UNSW Canberra Student Union, leading the marketing activities of the club.

EDUCATION

University of New South Wales (UNSW)

Canberra, ACT, Australia

PhD in Electrical Engineering

2023 - 2027

- **Thesis Submission Date** - October 2026
- **Research** - Analyzing and improving the robustness of autonomous vehicles' LiDAR-based 3D perception tasks against adversarial attacks and natural distortions.
- **Major Research Areas** - 3D Computer Vision, Robust Intelligent Systems, Autonomous Vehicles, Trustworthy AI, Adversarial Attacks.
- **Awards and Achievements** -
 - Awarded a full PhD scholarship.
 - Secured the UNSW DRTG grant twice to support professional development activities.
 - Received UNSW and NCI High Performance Computing allocation grants three times for PhD research, highlighting its impact.
 - Completed and was awarded the UNSW Graduate Teaching Training Program certificate for candidates who demonstrate Australian-specific teaching skills.
 - Served as Public Relations Officer for UNSW ARC (Canberra) student union, leading and managing the club's marketing activities.

University of Westminster

London, United Kingdom

B.Eng (Hons) in Software Engineering

2018 - 2022

- **Grade** - First Class Honours (Average - 87%).
- **Research Project** - Improving the robustness of 2D image classification networks used in autonomous vehicles against adversarial attacks and natural distortions in a generalized manner.
- **Awards and Achievements** -
 - Dr. Gamini Wickramasinghe Gold Medal for Academic Excellence – awarded for achieving batch top and the highest overall mark throughout the degree program.
 - Awarded the Best Final Year Research Project Award by Circles.Life Singapore for achieving the highest mark (93%) in a year-long research project module.
- **Studied at** - Informatics Institute of Technology, Sri Lanka.

EXPERIENCE

Casual Research Engineer

University of Southern Queensland (UniSQ)

Brisbane, QLD, Australia

September 2025 - Present

○ Responsibilities -

- Construct a simulation platform and develop computer vision algorithms for use in UAV-based search and rescue missions.
- Develop vision-language and LLM-based pipeline for CCTV video understanding and explanation.

○ Achievements -

- Developed solution enables the collection of data for training human identification networks across diverse environments and adverse conditions, significantly reducing the time and cost of real-world data collection using actual UAVs.

Visiting Lecturer and Student Project Supervisor

Informatics Institute of Technology (IIT)

University of Colombo School of Computing (UCSC)

Colombo, Sri Lanka

November 2022 - Present

May 2024 - Present

○ Responsibilities -

- Delivered tutorials in the Database Systems and Object-Oriented and Concurrent Programming modules for computer science students at IIT Sri Lanka, affiliated with the University of Westminster, UK, and assessed student assignments and coursework.
- Supervise final-year research projects, providing research and technical guidance.

○ Achievements -

- A supervised research project at IIT received the Best Research Paper Award at MERCON 2024 (Computer Vision and Image Processing Track).
- A student project supervised at UCSC was accepted to the ACIVS 2026 conference, a CORE-ranked B conference.

Casual Academic

University of New South Wales (UNSW)

Canberra, ACT, Australia

March 2026 - June 2026

- **Responsibilities** - Prepared lecture materials on robotic sensors and deep learning for robotics for the "Introduction to Robotics and Autonomous Systems" module.
- **Achievements** - Delivered high-quality teaching resources, including lecture materials and quizzes, to support effective learning in robotics and autonomous systems.

Software Development Specialist

University of Southern Queensland (UniSQ)

Brisbane, QLD, Australia

May 2024 - April 2025

- **Responsibilities** - Engineered computer vision and image processing solutions for use with robots. Developed a web application to communicate with robots and interact with AI models.
- **Collaborators** - Robotic and Autonomous Systems Implementation & Coordination Office (RICO), Australian Army.
- **Achievements** -
 - Presented a real-world demonstration to the RICO team, effectively showcasing the proposed solution's capabilities on securing military assets in complex environments.
 - Drafted a white paper on the project, highlighting the proposed solution's technical aspects, impact, and strategic advantages for the Army.

Research Assistant*University of Colombo School of Computing***Colombo, Sri Lanka***January 2022 - April 2023*

- **Research** - Autonomous Visual Detection of Bio-hazards Locations with Aerial Drones.
- **Responsibilities** - Devised methods to capture and process data from multi-spectral and mmWave radar sensors. Designed deep learning networks and image processing algorithms.
- **Collaborators** - Digital Futures by KTH Royal Institute of Technology, Uppsala University, and RISE Sweden.
- **Achievements** -
 - Delivered state-of-the-art performance in shallow water body detection and water depth estimation using multi-spectral aerial imagery and mmWave radar.
 - Published three research papers and delivered an invited talk at an international conference workshop on ICT applications in tropical medicine.

Undergraduate Research Fellow (Remote)*SEAD Research Group, The Open University, United Kingdom***Milton Keynes, United Kingdom***July 2021 - October 2022*

- **Research** - DroneBox: Automated Adaptive Collection of Unmanned Aerial Vehicle Flight Data.
- **Responsibilities** - Designed a blockchain data querying solution for forensic analysis with an interactive web simulation. Built application functionalities using TypeScript, Web3, and IPFS.
- **Achievements** -
 - Successfully delivered a drone forensics software solution with interactive visualization of flight behavior and no-fly-zone violation analysis, along with secure data storage.
 - Drafted a research paper and comprehensive application documentation.

Trainee Associate Big Data and Data Science Engineer*Zone 24x7 Inc (Headquartered in San Jose, California, USA)***Colombo, Sri Lanka***July 2020 - July 2021*

- **Responsibilities** - Developed data processing solutions using the Apache data engineering stack for Zone24x7's Analytics Center platform, enabling efficient data collection, organization, and visualization to support data-driven decision-making. Built an automated machine learning system using Apache Spark ML and implemented tools to monitor and analyze system logs with Elastic Stack and GROK.
- **Achievements** -
 - Delivered a production-grade data engineering pipeline for propensity modeling and recommendation systems in E-commerce applications, improving personalization capabilities and enabling faster, data-driven customer targeting.
 - Led R&D initiatives in AutoML to streamline and fine-tune machine learning models for E-commerce applications, significantly reducing the time and effort required for model tuning while improving the performance of key prediction components.
 - Implemented an Elastic Stack-based log monitoring platform, enabling detection of performance issues and supporting optimization of system performance in E-commerce applications.

Trainee Associate Software Engineer*RevportX***Colombo, Sri Lanka***June 2019 - October 2019*

- **Responsibilities** - Engineered web and mobile applications for a parking space rental system and architected databases and data flows for applications.
- **Achievements** - Able to led architectural design of database system and core backend functionalities of web application.

KEY SKILLS

Programming Language	Python, Java, Scala, JavaScript, TypeScript, PHP, Bash
Data Engineering	SQL, MongoDB, Apache ecosystem (e.g. Hadoop, Hive, Kafka, Airflow etc.), Grafana, Power BI, Elastic Stack
AI and Computer Vision	Pytorch, Tensorflow, Scikit-learn, OpenCV, Open3D, Generative Networks, Wandb, Hugging Face, 3D vision, Multi-spectral images.
Web Development and Rest APIs	HTML, CSS, Django, Flask, NodeJS, SpringBoot, Angular
Version controlling and Testing	Git, JUnit, PyUnit
Other Skills	Documentation Skills (LaTeX), Teaching, Fast-learner, Critical Thinking, Leadership, Work Ethic, Teamwork, Project Management, Time management, Data Analytics

RESEARCH PUBLICATIONS

Journal Articles.....

- **K.T.Y. Mahima**, A.G. Perera, S. Anavatti, and M. Garratt, "FlowCraft: Unveiling Adversarial Robustness of LiDAR Scene Flow Estimation," Pattern Recognition Letters, vol. 191, 2025.
- **K.T.Y. Mahima**, A.G. Perera, S. Anavatti, and M. Garratt, "Toward robust 3D perception for autonomous vehicles: A review of adversarial attacks and countermeasures," IEEE Transactions on Intelligent Transportation Systems, 2024.
- A. Pramodya, **K.T.Y. Mahima**, R. Pushpananda, and R. Weerasinghe, "Enhancing Neural Machine Translation for the Sinhala-Tamil language pair with limited resources," International Journal on Advances in ICT for Emerging Regions (ICTer), vol. 17, no. 1, 2024.
- **K.T.Y. Mahima**, A. Perera, S. Anavatti, and M. Garratt, "Exploring Adversarial Robustness of LiDAR Semantic Segmentation in Autonomous Driving," Sensors, vol. 23, no. 23, p. 9579, 2023.
- **K.T.Y. Mahima**, M. Ayoob, and G. Poravi, "Adversarial Attacks and Defense Technologies on Autonomous Vehicles: A Review," Applied Computer Systems, vol. 26, no. 2, pp. 96–106, Dec. 2021.

Conference Proceedings.....

- R. Walgama, **K.T.Y. Mahima**, A. S. Atukorale, "AdvDet: Diffusion Inspired Image Watermarking Against Adversarial Attacks," in 23rd Advanced Concepts for Intelligent Vision Systems (ACIVS) 2026 - Accepted.
- **K.T.Y. Mahima**, A. G. Perera, S. Anavatti, and M. Garratt, "3DR-DIFF: Blind Diffusion Inpainting for 3D Point Cloud Reconstruction and Segmentation," in 2024 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), IEEE, 2024, pp. 7414–7421.
- R. Walgama and **K.T.Y. Mahima**, "FL-CycleGAN: Enhancing Mobile Photography with Federated Learning-Enabled CycleGAN," in 2024 Moratuwa Engineering Research Conference (MERCon), IEEE, 2024, pp. 688–693.
- Q. Shen, **K.T.Y. Mahima**, K. De Zoysa, L. Mottola, T. Voigt, and M. Flierl, "CNN-Based Estimation of Water Depth from Multispectral Drone Imagery for Mosquito Control," in 2023 IEEE International Conference on Image Processing (ICIP), IEEE, 2023, pp. 3250–3254.
- **K.T.Y. Mahima**, M. Weerasekara, K. De Zoysa, et al., "Fighting Dengue Fever with Aerial Drones," in International Conference on Embedded Wireless Systems and Networks (EWSN), Linz, Austria,

3-5 October 2022, Association for Computing Machinery (ACM), 2022, pp. 206–207.

- **K.T.Y. Mahima**, M. Weerasekara, K. D. Zoysa, et al., "MM4Drone: A Multi-spectral Image and mmWave Radar Approach for Identifying Mosquito Breeding Grounds via Aerial Drones," in International Conference on Pervasive Computing Technologies for Healthcare, Springer, 2022, pp. 412–426.
- Check my full publication list on Google Scholar .

AWARDS AND ACHIEVEMENTS

2025 UNSW DRTG Grant 2025: Awarded AUD 1,500 by UNSW to support conference travel and professional development activities.

UNSW-NCI High Performance Computing Allocation Grant 2025: PhD research was granted high-performance computing resources at NCI Australia for the second time in recognition of its impact and excellence.

2024 Best Research Paper : Image Processing and Computer Vision Track, 10th MERCon International Conference.

Australian Department of Defense Grant: Received AUD 50K for a project to explore latest computer vision and AI techniques that could be used for future military missions.

UNSW DRTG Grant 2024: Received AUD 1,500 from UNSW to travel and present a paper at IROS 2024, the second-best conference in robotics.

UNSW-NCI High Performance Computing Allocation Grant 2024: Received 150 high-performance computing units at NCI Australia to aid PhD research.

2022 UNSW Tuition Fee Scholarship: Received a full scholarship (tuition fees and living expenses) for a PhD at UNSW Australia.

Merit Award at NBQSA 2022: Undergraduate research project ranked among the top 10 technical tertiary student projects in Sri Lanka at the NBQSA National ICT Awards 2022.

Best Final Year Project : Undergraduate research project was honored as the Best Final Year Research Project by Circles.Life Singapore for attaining the highest mark in the batch.

Gold Medal : Dr. Gamini Wickramasinghe Gold Medal for Academic Excellence – Batch Top, B.Eng (Hons) in Software Engineering.

EXTRACURRICULAR ACTIVITIES

Since 2023 Article Reviewer : Review articles on topics related to computer vision, deep learning, adversarial robustness, and autonomous vehicles in venues such as *IEEE Sensors*, *IEEE TAI*, *IEEE T-ITS*, *IEEE TETCI*, *IEEE CJECE*, *IEEE Vehicular Technology Magazine*, *Springer Nature Scientific Reports*, *International Journal of Machine Learning and Cybernetics*, *Discover Artificial Intelligence*, *The Journal of Supercomputing*, *International Journal of Intelligent Robotics and Applications*, and *Behaviour & Information Technology*

2024 Public Relations Officer : ARC UNSW Canberra.

2023 Organizing Committee : IEEE Region 10 Symposium (TENSYP) 2023.

CERTIFICATIONS

2023 **Graduate Teaching and Training Program.** Awarded by UNSW Canberra.

2020 **Advanced Data Science with IBM.** Awarded by IBM on Coursera.

2020 **Big Data Specialization.** Awarded by the University of California, San Diego on Coursera.

REFERENCES

- Available upon request.