K.T. Yasas Mahima

Canberra, Australia

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PROFESSIONAL SUMMARY

AI and Data Engineer with a strong foundation in computer vision and software engineering, backed by industry experience and ongoing Ph.D. research in Computer Vision and AI. Skilled in developing AI and scalable data engineering solutions. Passionate about exploring cutting-edge AI and computer vision technologies, and committed to building intelligent solutions that deliver real-world impact.

EXPERIENCE

Research Engineer **Brisbane, QLD, Australia**
University of Southern Queensland (UniSQ) *September 2025 - Present*

- **Responsibilities** - Develop a simulation platform and computer vision-based experimental setup for research on search and rescue missions using UAVs.

Research Consultant **Brisbane, QLD, Australia**
University of Southern Queensland (UniSQ) *May 2024 - April 2025*

- **Responsibilities** - Initialized and developed computer vision and image processing solutions for use with military 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** - Drafted a white paper on the project and successfully presented a real-world demonstration to the RICO team.

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

- **Research** - Autonomous Visual Detection of Bio-hazards Locations with Aerial Drones.
- **Responsibilities** - Developed 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** - Published three research papers and delivered an invited talk at a conference.

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

- **Research** - DroneBox: Automated Adaptive Collection of Unmanned Aerial Vehicle Flight Data.
- **Responsibilities** - Designed and implemented a blockchain data querying solution for forensic analysis, along with an interactive web simulation. Developed blockchain features and application functionalities using TypeScript, Ethereum Web3, and IPFS. Documented the application's functionalities.
- **Achievements** - Drafted a research paper.

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

- **Responsibilities** - Developed intermediate microservices and data engineering solutions for Zone24x7's Analytics Center platform, focusing on ETL, data warehousing, and visualization processes using technologies such as Kafka, Hive, Hadoop, HBase, SQL, Airflow, and Grafana, along with functional programming in Scala. Implemented an AutoML platform using Spark ML, and developed log monitoring and custom log mining scripts using the Elastic Stack and GROK.
- **Achievements** - Delivered a production-grade data engineering pipeline for propensity modeling and recommendation prediction components in the Analytics Center platform. Led R&D initiatives on AutoML and the Elastic Stack.

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

- **Responsibilities** - Developed web and mobile applications for a parking space rental system and architected the databases and data flows for the applications.
- **Achievements** - Led the architectural design of the database system and core backend functionalities of the web application.

EDUCATION

University of New South Wales (UNSW) — **Canberra, ACT, Australia**
PhD in Electrical Engineering — *2023 - 2027*

- **Major Research Areas:** 3D Computer Vision, Robust Intelligent Systems, Autonomous Vehicles, Trustworthy AI, Adversarial Attacks.

University of Westminster — **London, United Kingdom**
B.Eng (Hons) in Software Engineering — *2018-2022*

- **Grade:** First Class Honours (Average - 87%).
- **Awards:**
  1. Dr. Gamini Wickramasinghe Gold Medal for Academic Excellence (Batch Top).
  2. Best Final Year Research Project Award by Circles.Life Singapore.
- **Studied at:** Informatics Institute of Technology, Sri Lanka.

KEY SKILLS

Programming Language	Python, Java, Scala, JavaScript, TypeScript, PHP, Bash
AI and Computer Vision	Pytorch, Tensorflow, Scikit-learn, OpenCV, Open3D, Generative Networks, Wandb, Hugging Face, 3D vision, Multi-spectral images.
Data Engineering	SQL, MongoDB, Apache ecosystem (e.g. Hadoop, Hive, Kafka, Airflow etc.), Grafana, Elastic Stack
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

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**, T. Ginige, and K. De Zoysa, "Evaluation of Sentiment Analysis based on AutoML and Traditional Approaches," International Journal of Advanced Computer Science and Applications, vol. 12, no. 2, 2021.
- **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

- **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.
- **K.T.Y. Mahima**, M. Ayoob, and G. Poravi, "An Assessment of Robustness for Adversarial Attacks and Physical Distortions on Image Classification using Explainable AI," in AI-Cybersec@SGAI, 2021.
- **K.T.Y. Mahima**, R. Abeygunawardana, and T. Ginige, "Dynamic Traffic Light Controlling System Using Google Maps and IoT," in 2020 From Innovation to Impact (FITI), IEEE, vol. 1, 2020, pp. 1–5.
- **K.T.Y. Mahima** and T. Ginige, "Graph and Natural Language Processing Based Recommendation System for Choosing Machine Learning Algorithms," in 2020 12th International Conference on Advanced Infocomm Technology (ICAIT), IEEE, 2020, pp. 119–123.
- **Check my full publication list on Google Scholar** 🎓

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.

AWARDS AND ACHIEVEMENTS

2025 **UNSW DRTG Grant 2025**: Received 1,500 AUD from UNSW for conference travel.

UNSW-NCI High Performance Computing Allocation Grant 2025: Received 100 high-performance computing units at NCI Australia.

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

Australian Department of Defense Grant: Received 50K AUD for a project in computer vision and AI.

UNSW DRTG Grant 2024: Received 1,500 AUD from UNSW for conference travel.

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

2022 **UNSW Tuition Fee Scholarship**: Received a full scholarship (Tuition fee+living expenses) for a PhD from UNSW Australia.

Merit Award: NBQSA National ICT Awards 2022, Sri Lanka.

Best Final Year Project : Awarded by Circles.Life Singapore for an outstanding final-year research project.

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

PROFESSIONAL SERVICES

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*

2023 **IEEE Region 10 Symposium (TENSYMP) 2023**. Organizing Committee.

REFERENCES

- **Prof. Matt Garratt**
  Professor, School of Engineering and Technology
  University of New South Wales, Canberra.
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- **Dr. Asanka Perera**
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  University of Southern Queensland, Brisbane.
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