



Summary

I am a PhD candidate at RMIT University, working in collaboration with Carsales to advance computer vision for vehicle damage detection. My doctoral research focuses on multimodal approaches that integrate vision-language models with object detection, resulting in two key outputs: GroundingCarDD ([Github](#)) and CarDVLM ([Github](#)). Beyond my PhD, I have contributed to research assistantships across domains including sentiment analysis, explainable AI in healthcare, and systematic reviews, as well as industry-facing applications in eCommerce. My broader expertise spans deep learning, computer vision, and natural language processing, supported by a strong publication record and extensive experience in cross-disciplinary collaborations. I aim to develop scalable and interpretable AI systems that bridge academic innovation with real-world impact.

Education

- Sep, 2022–present: **PhD in Business Information Systems**, *Royal Melbourne Institute of Technology (RMIT) University, Australia*. (Thesis defended; final submission in progress, expected completion April 2026.)
- 2016–2021: **Bachelor of Science, Electrical and Electronic Engineering**, *Hajee Mohammad Danesh Science and Technology University, Bangladesh*.

Research Experience

Car Damage Detection (PhD Project, RMIT & Carsales, 2022–present)

My doctoral research investigates multimodal approaches to automated vehicle damage detection, with a particular emphasis on combining object detection and vision-language modelling. In collaboration with Carsales, I developed GroundingCarDD ([Github](#)), a text-guided phrase grounding framework that advances fine-grained localisation of vehicle damage by integrating visual and textual features. Building on this foundation, I proposed CarDVLM ([Github](#)), a vision-language model designed to provide structured and semantically rich assessments of damage type, severity, and location. To support this work, I curated a domain-specific dataset of more than 8,000 annotated images and introduced CarDamageEval, a dual-layer evaluation framework combining structured accuracy with semantic quality metrics. Together, these contributions enhance the interpretability and robustness of AI-driven inspection systems, with applications in digital marketplaces, insurance claims processing, and automated servicing.

Biomedical Imaging (Undergraduate Thesis, 2021)

As part of my undergraduate thesis, I developed a generative adversarial network for denoising retinal OCT images, which improved diagnostic clarity for ophthalmic analysis. Alongside this, I investigated chest X-ray segmentation techniques for detecting pneumonia and COVID-19, producing models capable of identifying disease-related regions with precision. These projects resulted in published conference contributions and demonstrated the potential of deep learning to enhance biomedical image interpretation ([Github](#)).

Bangla OCR and Natural Language Processing (2018–2020)

My early research centred on Bangla character recognition and natural language processing. I developed deep learning models capable of recognising Bangla basic, compound, and numerical characters with high accuracy, and published two papers in this area. Additional work on sentiment analysis and sign language recognition applied computer vision and NLP to social and accessibility contexts, producing further conference publications ([Github](#)).

Research Assistantships

RMIT University

I contributed to multiple research projects during my PhD candidature. In the Photo Sentiment Analysis (PhotoPes Project), I developed sentiment-based metrics for large-scale photo datasets and designed aggregation methods to generate sentiment indices used in finance research. In a study of CEO and Managerial Facial Traits, I processed executive photographs, extracted facial landmarks, and applied machine learning to compute measures of trustworthiness and dominance, validated with human ratings. I also assisted in the oTree Simulation Project, where I supported the design of behavioural simulations, coding participant interaction logic and ensuring reproducibility of experiments. Additionally, I contributed to a systematic literature review on ESG research, applying structured screening protocols and bibliographic data management to support analysis of methodological developments.

Deakin University

At Deakin, I assisted in a project on Brain Tumour Detection using Explainable AI. My role involved preparing imaging datasets, applying classification models, and incorporating explainability techniques to enhance interpretability for medical researchers and practitioners.

Industry Research Experience

2022 - Feb, **PhD Candidate - Data Science and Machine Learning at *carsales.com Ltd***

2026 In parallel with my PhD research, I have worked as a Machine Learning Engineer at Carsales, focusing on the design and deployment of computer vision systems for vehicle damage detection. This role has enabled the direct translation of academic methods into large-scale eCommerce applications, strengthening the practical relevance of my doctoral research.

Publications

In Journal Proceedings

- 2025 **Md. Jahid Hasan**, Kha Cong Nguyen, Hamed Jahani, Yee Ling Boo and Kok-Leong Ong; Vehicle Damage Detection Using Artificial Intelligence: A Systematic Literature Review, In *Proceedings of WIREs Data Mining Knowl Discov*, 15: e70027. <https://doi.org/10.1002/widm.70027>
- 2025 **Md Jahid Hasan**, Mahmudul Hasan, Sumya Akter, Abu Bakar Siddique Mahi, Md Palash Uddin; Enhancing Brain Tumor Classification with a Novel Attention Based Explainable Deep Learning Framework, *Proceedings of Biomedical Signal Processing and Control, Volume 112*, <https://doi.org/10.1016/j.bspc.2025.108636>.
- 2024 **Md. Jahid Hasan**, Agustinus Nalwan, Kok-Leong Ong, Hamed Jahani, Yee Ling Boo and Kha Cong Nguyen; GroundingCarDD: Text-Guided Multimodal Phrase Grounding for Car Damage Detection, In *Proceedings of IEEE Access*, vol. 12, pp. 179464-179477, 27 Nov. 2024. DOI: 10.1109/ACCESS.2024.3506563

In Conference Proceedings

- 2025 **Md Jahid Hasan**, Hamed Jahani, Yee Ling Boo and Kok-Leong Ong; CarDamageEval: Benchmark Evaluation of Car Damage Assessment Using Vision Language Models, Proceedings of the 23rd Australasian Data Science and Machine Learning Conference (AusDM'25), (**Accepted**).
- 2021 **Md. Jahid Hasan**, Md Shahin Alom, Umme Fatema, Md. Ferdous Wahid; Deep Learning Based Retinal OCT Image Denoising using Generative Adversarial Network, In *proceedings of International Conference on Automation, Control and Mechatronics for Industry 4.0 (ACMI)*, 8-9 July 2021
- 2021 **Md. Jahid Hasan**, Md Shahin Alom, Md Shikhar Ali; Deep Learning based Detection and Segmentation of COVID19 and Pneumonia on Chest Xray Image, In *proceedings of International Conference on Information and Communication Technology for Sustainable Development (ICICT4SD)*

Teaching Experience

Advanced Business Analytics – Teaching Assistant at *RMIT University*

Delivered tutorials and workshops on data preparation, visualisation, and machine learning methods using Python and AI Studio. Guided students in model development, evaluation, and advanced analytics topics.

Business IT Infrastructure – Teaching Assistant at *RMIT University*

Facilitated labs on IT infrastructure and cloud systems, including Linux administration, networking, and server deployment. Introduced advanced topics such as virtualisation, containers, IoT, and APIs.

Database Design and Development – Teaching Assistant at *RMIT University*

Led tutorials on database fundamentals, relational schema design, and SQL programming. Supported students in advanced topics including administration and links to Big Data and Analytics.

Technical Skills

Programming	Python, C, Java, MySQL, HTML, JavaScript
Frameworks	OpenCV, Scikit-learn, TensorFlow, Keras, PyTorch, Flask
Tools & Platforms	Linux, Docker, Raspberry Pi, VirtualBox, & AWS

Grants & Funding

Industry Grant (RMIT–Carsales, PRJ00000694), *Supported the development of Grounding-CarDD & CarDVLM for automated car damage detection (2022–present).*

RACE AWS Merit Allocation Scheme (RMAS) 2025, *Awarded two rounds of AWS cloud computing credits (Jan 2025, July 2025) to support large-scale training and evaluation of vision–language models for vehicle damage detection.*

Positions of Responsibility

2024	CoBL HDR Candidate Representative , <i>College of Business and Law (CoBL), RMIT University</i>
2019	Robotics Convener, IEEE HSTU Student Branch , <i>HSTU, Dinajpur, Bangladesh</i>
Nov 2019	Organizer, Maker-Fair 2019, IEEE HSTU Student Branch , <i>HSTU, Dinajpur, Bangladesh</i>

Reference

Professor Kok-Leong Ong

Director, RMIT CoBL Technology Initiative

Department: Strategy Int'l & Engagement

✉ kok-leong.ong2@rmit.edu.au

☎ 03 9925 4147

Dr. Hamed Jahani

Senior Lecturer, RMIT University

Department of Accounting, Information Systems & Supply Chain

✉ hamed.jahani2@rmit.edu.au