



Education

PhD in Human–Computer Interaction for Intelligent Transportation Systems,

Monash University

2022 – Present

Supervisors: Dr. Wynita Griggs & Dr. Michael Burke

Thesis title: From perception to interaction: Psychological drivers and adaptive conversational agents for shared autonomous vehicles (SAVs) – **Submitted for Examination**

- **Predict:** Developed predictive modelling and visual analytics frameworks to identify drivers of technology acceptance.
- **Interact:** Designed LLM-based SAV interfaces and conducted an ethics-approved study with 50 participants, generating 2,136 open-domain interactions to examine user requests, psychological ownership, and anthropomorphic cues.
- **Measure:** Developed and benchmarked automated methods for measuring dialogue attributes, identifying interaction signals associated with users' perceived service quality.
- **Control:** Developed a closed-loop control framework using system identification, feedback control, and Markov modelling to steer LLM response behaviour towards more adaptive and stable interaction.
- **Research outputs:** 1 published Q1 journal article (Technological Forecasting & Social Change), 1 journal article under review, 1 published international conference paper (IEEE ITSC 2025), 1 open dataset, and 1 manuscript in preparation.
- **Thesis examination:** Both examiners assessed the thesis as worthy of nomination for a thesis award, with all merit criteria rated Excellent or Exceptional.

B.Eng. (Honours) in Civil Engineering, Monash University

2017 – 2022

B.Com. in Business Analytics, Monash University

2017 – 2022

Research Experience

Postdoctoral Research Fellow – Human–Robot Interaction, Monash University

Sep 2026 – Present

Monash Robotics | ARC Industrial Transformation Training Centre (ITTC) in Optimal Ageing | Supervisor: Prof. Dana Kulić

- Investigating how older adults' preferences, needs, and lived experiences can inform adaptive home robot behaviour, particularly different levels of robot initiative in shared environments.
- Developing a MuJoCo-based simulation and evaluation pipeline for Reachy 2, integrating robot control, safety constraints, and exploring pre-trained Vision-Language-Action (VLA) policies for household manipulation tasks.
- Collaborating with multidisciplinary researchers across robotics, design, and ageing research to develop participatory approaches and plan human-subject studies involving older adults.

Research Collaborator – AI in Engineering Education Research and Innovation,

Monash University

2024 – Present

Team: Assoc. Prof. Nan Zheng, Assoc. Prof. Ye Lu, and Dr. Linxin Hua

- Co-developed and trialled CivASK, a RAG-based learning assistant to provide students with accessible, context-specific support for specialised engineering queries.
- Contributed to the development of a proactive multi-agent evaluation framework, where an automated question-generation module simulated 742 authentic student inquiries and generated 374 test questions, enabling CivASK to be continuously refined.
- Applied prompt optimisation to support technical problem-solving beyond generic text polishing.
- Contributed to AI-assisted teaching analytics by processing 6,072 student feedback comments across core civil engineering unit cohorts from 2022–2024, identifying recurring learning difficulties for curriculum improvements.
- **Research outputs:** 1 published Q1 journal article (Computer-Aided Civil and Infrastructure Engineering, SJR 2.155) and 1 published international conference paper (AAEE 2024), 1 journal article under review.

Research Assistant, Monash University

2022 – 2023

Team: Dr. Hoam Chung, Dr. Michael Burke, Dr. Elahe Abdi, Dr. Hung Quang Luu, Dr. Thai Nguyen, Prof. Hai Vu

- Performed comprehensive literature reviews in high-quality journals, systematically identifying, filtering, and synthesising research on risk assessment methodologies for autonomous system design.

Publications

JOURNAL ARTICLES

- **Guo, L.**, Burke, M. G., & Griggs, W. M. (2025). A new framework to predict and visualize technology acceptance: A case study of shared autonomous vehicles. *Technological Forecasting and Social Change*, 212, 123960. <https://doi.org/10.1016/j.techfore.2024.123960> (**Q1, SJR 3.479, ABDC A**)
- Hua, L., **Guo, L.**, Zheng, N., Lu, Y., Xu, J., & Deng, J. (2025). Proactive framework for evaluating retrieval-augmented generation-based learning assistants in engineering education. *Computer-Aided Civil and Infrastructure Engineering*, 1–18. <https://doi.org/10.1111/mice.70063> (**Q1, SJR 2.155**)
- Ye, F., Wang, C., Zhang, Z., Zhu, T., Dou, H., & **Guo, L.** (2026). Evaluating the effectiveness of a behavior change wheel-informed intervention to reduce risky riding behaviors among delivery riders. *Transportation Research Part F: Traffic Psychology and Behaviour*, 120, 103663. <https://doi.org/10.1016/j.trf.2026.103663> (**Q1, SJR 1.219, ABDC A**)

PREPRINTS (UNDER REVIEW)

- **Guo, L.**, Burke, M. G., & Griggs, W. M. (2025). Exploring human-SAV interaction using large language models: The impact of psychological factors on user experience. arXiv.org. <https://arxiv.org/abs/2504.16548>
- Hua, L., Xu, J., **Guo, L.**, Zheng, N., Shen, Q., Tan, D., & Lu, Y. (2026). Curriculum-aligned analysis of assessment feedback: A retrieval-augmented large language model approach for revealing fine-grained student error patterns in higher education. Research Square. <https://doi.org/10.21203/rs.3.rs-9561394/v1>

CONFERENCE PROCEEDINGS

- **Guo, L.**, Burke, M. G., & Griggs, W. M. (2025). Sentiment matters: An analysis of 200 human-SAV interactions. *2025 IEEE 28th International Conference on Intelligent Transportation Systems (ITSC)*, Gold Coast, Australia, 2025, pp. 1111–1118. <https://doi.org/10.1109/ITSC60802.2025.11423422>
- Hua, L., Zheng, N., Lu, Y., **Guo, L.**, & Xu, J. (2024). Use of large language models in engineering education: A case study on infrastructure design report introductions. *Proceedings of AAEE 2024. 35th Australasian Association for Engineering Education Annual Conference*, Christchurch, New Zealand. <https://easychair.org/publications/preprint/XpQv>

DATASET

- **Guo, L.**, Burke, M. G., & Griggs, W. M. (2025). *200 Human-SAV Interactions: Dialogues & Surveys* [Data Set]. Bridges. <https://doi.org/10.26180/29486447>

Awards & Honours

Dean's Award for Innovation in Learning and Teaching, Faculty of Engineering, Monash University 2026

- Led by Associate Professor Nan Zheng. Faculty-level Dean's Award for Innovation in Learning and Teaching, awarded through a competitive selection process as part of a team; formally selected as a nominee for the Vice-Chancellor's Education Excellence Awards.

Best Student Presentation (Travel Behaviour Modelling), Australasian Transport Research Forum (ATRF) 2024

- Awarded **1st place** for the top PhD Symposium in the Travel Behaviour Modelling stream.

GHD Highway Design Prize, Department of Civil Engineering, Monash University 2022

- Awarded to the top **1%** of student teams for the best highway design project in CIV4287 Road Engineering.

Research Grants, Scholarships & Support

Pawsey Fast Track Access Scheme, Pawsey Supercomputing Research Centre 2026 Q4

- Awarded 250 kSU of GPU computing resources on the Setonix supercomputer to support research on LLM-based adaptive intelligent systems.

ITE-ANZ Worldwide Learning Opportunities Grant, Austraffic Sponsorship 2026

- Selected as the **Victorian recipient**, following Monash University nomination, for a grant awarded to one student from each Australian state/territory and New Zealand.

Conference Travel Support, Institute of Transport Studies, Monash University 2025

- Awarded AUD 540 in conference travel support to attend IEEE ITSC 2025.

- Awarded to high-achieving doctoral candidates based on academic excellence and research achievements.

Teaching Experience

Assistant Lecturer/Lead Teaching Associate, Civil and Environmental Engineering,

Monash University

2025 – Present

Units: CIV2282 Transport and Traffic Engineering, CIV3283 Road Engineering, CIV5177 Advanced Road Engineering

- **Student-centred teaching:** Delivered tutorials, practical sessions, consultations, and assessment support across undergraduate engineering cohorts of up to 410 students.
- **Active and applied learning:** Helped students connect theory with practice in traffic flow and road design, using visualisations to enhance their understanding of complex concepts such as shockwave theory and time–space diagrams.
- **Curriculum and assessment design:** Developed teaching materials, learning activities, and assessments to strengthen conceptual understanding, technical reasoning, and professional engineering skills.
- **Digital learning support:** Managed online learning resources, discussion spaces, marking workflows, and assessment processes to support consistent and accessible learning.
- **Curriculum and industry engagement:** Contributed to curriculum improvement through student feedback analysis, teaching team discussions, and guest lecture support with DTP Victoria and SMEC.

Teaching Associate, Civil and Environmental Engineering, Monash University

Feb 2023 – Present

Units: CIV2282 Transport and Traffic Engineering, CIV3283 Road Engineering, ENG1021 Spatial Communication in Engineering, CIV2206 Structural Mechanics

- **Practical delivery:** Facilitated practical sessions and fostered engaging and inclusive learning environments that promoted active learning and critical thinking.
- **Assessment support:** Marked assessments and provided constructive feedback in accordance with unit rubrics and teaching-team guidelines.

Sessional Academic, Information Systems & Business Analytics, Deakin University

Jul 2026 – Present

Units: MIS362 Social Media Analytics and Data Driven Innovation

- **Academic judgement and marking:** Assessed student work and assigned marks using academic judgement in accordance with unit assessment criteria and academic standards.

Tutor, Faculty of Business and Economics, The University of Melbourne

Feb 2024 – Jun 2025

Unit: CMCE10001 Sustainable Commerce

- **Lecture support:** Assisted in delivering lectures and supporting a large first-year cohort of ~1,700 students per semester.
- **Tutorial delivery:** Independently led and delivered tutorial sessions (20 students each) and interactive class activities to foster student engagement, personal growth, and a deeper understanding of sustainable commerce.
- **Applied learning:** Supported students in applying theoretical concepts to practical, real-world sustainability challenges.
- **Student support:** Managed consultations, graded assessments, and provided individualised support and guidance to students.

Conference Presentations & Professional Talks

- Transport Professionals Association (TPA) Professional Webinar, Online
“CivASK: A Retrieval-Augmented AI Assistant for Engineering Education”
Presenter, alongside Associate Professor Nan Zheng and Dr. Linxin Hua. 2026
- IEEE International Conference on Intelligent Transportation Systems (ITSC), Gold Coast, Australia
“Sentiment matters: An analysis of 200 human-SAV interactions.” 2025
- The 35th Australasian Association for Engineering Education (AAEE 2024) Annual Conference, Christchurch
“Use of Large Language Models in Engineering Education: A Case Study on Infrastructure Design Report Introductions” 2024

- Australasian Transport Research Forum (ATRF), PhD Student Research Symposium, Melbourne, Australia 2024
- Monash 4th Engineering Postgraduate Conference, Melbourne, Australia 2024
 “Exploring User Interaction with Shared Autonomous Vehicles: The Impact of Psychological Ownership and Anthropomorphism on User Experience”
- ITS Australia Global Summit, Melbourne, Australia 2023
 “A Random Forest Approach to Predict and Visualize Public Acceptance of Shared Autonomous Vehicles”
- Monash 3rd Engineering Postgraduate Conference, Melbourne, Australia 2023
 “Sentiment Analysis of Shared Autonomous Vehicle Voice Assistants: The Role of Psychological Ownership and Anthropomorphism in Chatbot Responses”

Academic Service & Mentoring

MONASH UNIVERSITY, CLAYTON, VIC

- Mental Health First Aider (MHFA) | Faculty of Engineering 2024 – 2026
- First Aider | Monash Robotics 2024 – Present
- First-Year Branch Selection Event, Civil Engineering Specialisation Representative 2024
- Monash University Open Day Civil Engineering Student Volunteer 2023 – 2026

JOURNAL REVIEWER

- IEEE Robotics and Automation Letters, Acta Psychologica, IEEE Access, IEEE IV 2024 – Present

MENTORING

Access Monash Mentoring – Mentor

- Monash University 2023
- Provided one-on-one mentoring to Year 11–12 students navigating the Victorian Certificate of Education (VCE).
 - Supported students from under-represented communities to explore campus and university life and discover their dream careers.

MentorLinkPhD – Mentee (Mentored by Professor Jeremy Barr)

- Monash University 2025 – 2026
- Engaged in structured mentoring with senior academics and fellow PhD students from diverse disciplinary backgrounds.
 - Discussed strategies for academic success, professional development, and post-PhD career planning.

Professional Experience

eAssessment IT Support Officer, Monash University May 2026 – Present

- Provide frontline phone support to students during eAssessments, resolving time-sensitive technical issues calmly and accurately, and logging and escalating complex cases when needed.

Façade Cadet, ICON – A KAJIMA COMPANY, Abbotsford Jul 2021 – Aug 2022

- Supported façade engineering coordination, quality assurance verification, and drawing compliance review within a large-scale commercial construction environment.

Languages and Skills

Research and computational skills: R, Python, LLM-based agent design (Ollama, OpenAI API), sentiment and NLP analysis, human-subject research (ethics protocols, data management)

Languages: Fluent in English and Chinese (Mandarin)

Technical & Software: Survey & user study design, Qualtrics, Learning Management System (LMS), hybrid delivery through forum and Zoom, AutoCAD, SketchUp, ArcGIS

Licenses & certifications: Working With Children Check (Employee), Standard Mental Health First Aider, Provide First Aid, White Card