LIRUI GUO

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EDUCATION

- **Ph.D.** in Civil and Environmental Engineering   Monash University, Clayton, VIC   2022 – Present
- **B.Eng. (Honours)** in Civil Engineering   Monash University, Clayton, VIC   2022
- **B.Com.** in Business Analytics   Monash University, Clayton, VIC   2022

RESEARCH EXPERIENCE

Graduate Researcher (Ph.D. candidate), with Dr. Wynita Griggs and Dr. Michael Burke   2022 – Present

Civil and Environmental Engineering, Monash University, Clayton, VIC

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

- Proposed a framework to predict and visualize technology acceptance.
- Explored the role and triggering mechanisms of psychological ownership in autonomous mobilities.
- Evaluated different prompting strategies in designing Large Language Model (LLM)-powered SAV agents.
- Designing a control framework to regulate users' perceived user experience in human-SAV interactions.
- **Research outputs**: 1 published Q1 journal article (*Technological Forecasting & Social Change, IF=13.3*), 1 journal article under review, 1 accepted international conference paper (*IEEE ITSC 2025*), and 1 manuscript in preparation (*Automatica*).

Researcher Collaborator, with Associate Professor Nan Zheng and Dr. Linxin Hua   2024 – Present

Civil and Environmental Engineering, Monash University, Clayton, VIC

- Explored the applications of LLM in Engineering Education and designed LLM-powered Learning Assistant
- Proposed a novel proactive evaluation framework for Retrieval-Augmented Generation (RAG)-based learning assistants
- **Research outputs**: 1 accepted Q1 journal article (*Computer-Aided Civil and Infrastructure Engineering*, *IF=9.1*) and 1 published conference paper (AAEE 2024).

Research Assistant, with Dr. Hoam Chung, Dr. Michael Burke, Dr. Elahe Abdi, Dr. Hung Quang Luu   2022 –2023

Mechanical and Aerospace Engineering, Monash University, Clayton, VIC

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

TEACHING EXPERIENCE

Assistant Lecturer, Civil and Environmental Engineering, Monash University   Jan 2025 – Present

- Assisted in coordinating administrative processes, led practical sessions, and managed student consultations for units with cohorts of up to 340 students.
- Developed assessments and teaching materials.
- Manage the online learning portal for course materials, discussions, and assessment markings.

Tutor, Sustainable Commerce, The University of Melbourne   Feb 2024 – Present

- Assisted in delivering lectures. Assisted in delivering lectures and supporting a large first-year cohort of ~1,700 students per semester.
- 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. Supported students in applying theoretical concepts to practical, real-world sustainability challenges.
- Managed consultations, graded assessments, and provided individualized support and guidance to students.

Teaching Associate, Civil and Environmental Engineering, Monash University   Feb 2023 – Jan 2025

- Undergraduate core and elective units, including *Spatial Communication in Engineering, Transport and Traffic Engineering,* and *Road Engineering.*
- Facilitated engaging and inclusive classroom environments to promote active learning and critical thinking.
- Guided students in computing engineering drawings, understanding traffic concepts, and road designs.
- Managed the consultation and graded assessments.

AWARDS AND HONORS

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

  Awarded **1st place** for the top Ph.D. student presentation in the Travel Behaviour Modelling stream.

- **GHD Highway Design Prize**   Monash University   2022

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

- **Monash Graduate Scholarship**   Monash University   2025

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

PUBLICATION

JOURNAL ARTICLE

- **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, IF 13.3, ABS 3)**
- 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, IF 9.1)**

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

CONFERENCE PROCEEDING

- **Guo, L.**, Burke, M. G., & Griggs, W. M. (2025). Sentiment matters: An analysis of 200 human-sav interactions. Proceedings of the IEEE International Conference on Intelligent Transportation Systems (ITSC), Gold Coast, Australia, Nov. 18–21, 2025

- 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/download

Conference Presentations

- IEEE International Conference on Intelligent Transportation Systems (ITSC), Gold Coast, Australia   2025
  "Sentiment matters: An analysis of 200 human-sav interactions."
- The 35th Australasian Association for Engineering Education (AAEE 2024) Annual Conference, Christchurch   2024
  "Use of Large Language Models in Engineering Education: A Case Study on Infrastructure Design Report Introductions"
- Australasian Transport Research Forum (ATRF), Ph.D. Student Research Symposium, Melbourne, Australia   2024
  "Exploring User Interaction with Shared Autonomous Vehicles: The Impact of Psychological Ownership and Anthropomorphism on User Experience"
- 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

Monash University, Clayton, VIC

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

Journal Reviewer

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

MENTORING PROGRAM EXPERIENCE

Access Monash Mentoring – Mentor

Monash University | 2023

- Provided one-on-one mentoring to Year 11–12 students navigating the Victorian Certificate of Education (VCE).
- Support 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

- 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.

LANGUAGES AND SKILLS

Computer languages: R, Python

Languages: Fluent in English and Chinese (Mandarin)

Technical & Software: Survey & user study design, Qualtrics, educational technologies (Canvas, Moodle, Zoom), AutoCAD, SketchUp, ArcGIS

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