Nannan (Amber) Huang

PhD Candidate in Natural Language Processing | Fairness and Bias Mitigation Researcher

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Research Focus

PhD researcher specialising in fairness and bias mitigation in AI systems with expertise in developing responsible AI solutions. Research focuses on addressing equity concerns in automated systems, with methodologies applicable to healthcare AI applications where fairness across diverse populations is critical.

Research Experience

PhD Computer Science – Natural Language Processing | *Mar 2022 - Mar 2026 (Expected)* | **RMIT University**
Thesis: Bias mitigation and fairness evaluation in language models for summarisation

Research Intern | *Mar 2025 – Jul 2025* | **National Institute of Informatics (NII), Japan**
Project: Detecting and Mitigating Social Bias in Text Generation Using LLMs.

DAAD Postdoc-NeT Fellowship – Natural Language Processing | Jun 2025 | German Academic Exchange Service (DAAD) Selected for a competitive international networking program connecting early-career researchers with leading AI institutions in Germany.

Key Publications

Huang, N., Maab, I., & Yamagishi, J. (Under Review). 'When Bigger Isn't Better: A Comprehensive Fairness Evaluation of Political Bias in Multi-News Summarisation'
Develops fairness evaluation methodologies adaptable for NLP systems processing diverse content

Huang, N., Fayek, H., & Zhang, X. J. (2025). 'REFER: Mitigating Bias in Opinion Summarisation via Frequency Framed Prompting' *NewSumm Workshop at EMNLP 2025*
Novel approaches for reducing demographic bias in summarisation systems

Huang, N., Fayek, H., & Zhang, X. J. (2025). 'Less Is More? Examining Fairness in Pruned Large Language Models for Summarising Opinions' *EMNLP 2025*
Addresses computational efficiency while maintaining equitable performance for resource-constrained applications

Huang, N., Fayek, H., & Zhang, X. J. (2024). 'Bias in Opinion Summarisation from Pre-training to Adaptation: A Case Study in Political Bias.' *EACL 2024*
Establishes bias detection methodologies and evaluates across adaptation techniques

Huang, N., Tian, L., Fayek, H., & Zhang, X. J. (2023). 'Examining Bias in Opinion Summarisation through the Perspective of Opinion Diversity.' *WASSA Workshop at ACL 2023*
Investigates fairness through diverse viewpoint representation in automated summarisation

Huang, N., & Zhang, X. (2021). 'Evaluation of Review Summaries via Question-Answering.' *ALTA 2021*
Develops question-answering based assessment techniques for summarisation quality and completeness

Additional Collaborative Publications:

Huang, N., Zhang, X. J., & Du, J. T. (2025). 'AI for human and misinformation interactions: A case of social media.' In D. Wu & S. Liang (Eds.), Human-AI interaction and collaboration. Cambridge University Press

Tian, L., Huang, N., & Zhang, X. (2024). 'Large language model cascades and persona-based in-context learning for multilingual sexism detection.', International Conference of the Cross-Language Evaluation Forum for European Languages 2024

Tian, L., Huang, N., & Zhang, X. (2023). 'Efficient Multilingual Sexism Detection via Large Language Model Cascades.', CLEF 2023

Technical Expertise

NLP & AI Fairness: Transformer models, PyTorch, bias evaluation frameworks, large language model assessment, fairness methodologies for diverse populations
Data Science: Scikit-learn, statistical analysis, experimental design, large-scale dataset processing (Pandas, NumPy, SciPy)
Research Skills: Evaluation framework development, interdisciplinary collaboration, bias detection and mitigation

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Teaching & Academic Service

Teaching Assistant – Foundation of AI for STEM | *Jul 2023 – Current* | **RMIT University**
Educating diverse STEM students on neural networks and deep learning applications

Teaching Assistant – Introduction to Python & Data Wrangling | *Jan 2022 – Current* | **Monash University**
Supporting students in programming and data analysis techniques

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Education

PhD of Computer Science | *Mar 2022 – Dec 2025 (Expected)* | **RMIT University**
Master of Data Science | *July 2020 – Nov 2021* | **RMIT University**
Master of Data Analytics | *Mar 2019 – July 2020* | **RMIT University**
Bachelor of Commerce (Accounting & Finance) | *Feb 2014 - Nov 2016* | **University of Melbourne**