Lingbo Tong

CONTACT INFORMATION	University of Notre Dame 430 Corbett Family Hall Notre Dame, IN 46556	ltong2@nd.edu lingbo-t.github.io

RESEARCH INTERESTS

Natural Language Processing, Machine learning, Quantitative Methods, and Computational Social Science.

EDUCATION

University of Notre Dame, Notre Dame, IN, USA
Joint Ph.D. in Quantitative Psychology and Computer Science and Engineering — Expected 2025
M.S. in Computer Science and Engineering — 2024

Sichuan University, Chengdu, China
B.Eng. in Computer Science and Technology — 2020

RESEARCH EXPERIENCE

Lab for Big Data Methodology, University of Notre Dame
Graduate Research Assistant, Advisor: Prof. Zhiyong Johnny Zhang — Aug 2020 – present
Research Topic: Integrating machine learning with structural equation modeling

DM2 Lab, University of Notre Dame
Graduate Research Assistant, Advisor: Prof. Meng Jiang — Aug 2020 – present
Research Topic: Large Language Models for mental health support

Natural Language Processing Lab (THUNLP), Tsinghua University
Research Assistant, Advisors: Prof. Zhiyuan Liu & Prof. Huimin Chen — Sep 2020 – Jan 2021
Research Topic: Social media sentiment analysis and bias detection

PUBLICATIONS

Journal & Conference Articles

Tong, L., & Zhang, Z. (drafted). TextSEM: Structural Equation Modeling for Text Data. *Structural Equation Modeling: A Multidisciplinary Journal.* [preprint]

Tong, L., & Zhang, Z. (under review). Neural Network Analysis of Psychological Data: A Step-by-Step Guide. *Multivariate Behavioral Research.* [preprint]

Lu, Y., **Tong, L.**, & Cheng, Y. (in press). Advanced Knowledge Tracing for Intelligent Tutoring Systems: Incorporating Process Data and Curricula Information via an Attention-Based Framework. *Journal of Educational Data Mining.* [preprint]

Tong, L., Qu, W., & Zhang, Z. (2024). Comparison of the K1 Rule, Parallel Analysis, and the Bass-Ackward Method on Identifying the Number of Factors in Factor Analysis. *Fudan Journal of the Humanities and Social Sciences*, 1-28. [DOI]

Zhang, J., Chen, H., & **Tong, L.** (2022). Structured Gender Bias: How is Gender Cognition Changed and Affected by Digital Communities in China? *In 2022 Annual Conference of International Association for Media and Communication Research Conference (IAMCR).*

Kuebler, J., **Tong, L.**, & Jiang, M. (2021). Multi-round parsing-based multiword rules for scientific knowledge extraction. *In 2021 IEEE International Conference on Big Knowledge (ICBK)* (pp. 331-338). IEEE. [DOI]

Chen, H., Jin S., Lin W., Zhu Z., **Tong L.**, Liu Y., ... & Sun M. (2021). Quantitative analysis on

the communication of COVID-19 related social media rumors. *Journal of Computer Research and Development,* 58(7), 1366-1384. [DOI]

Workshop Papers & Presentations

Tong, L. & Jiang, M. (2024). Large Language Models in Mental Health Support. *Summer Research Experience for Teacher's program*, 19 June, Notre Dame, USA. [slides]

Tong, L., Liu, Q., Yu, W., Yu, M., Zhang, Z., & Jiang, M. (2023). Improving mental health support response generation with event-based knowledge graph. *Workshop on Knowledge-Augmented Methods for NLP (KnowledgeNLP) at AAAI Conference on Artificial Intelligence (AAAI).* [paper] [slides]

Wan, R., & **Tong, L.** (2023). Digital and Historical Exclusivity in Feminine Linguistics: From Nüshu to Xiaohongshu. *WiNLP workshop at Conference on Empirical Methods in Natural Language Processing (EMNLP).* [paper]

Tong, L., Zhang, Z., Jiang M., & Li J. (2023). Permutation test of Importance-Weighted Autoencoder for Factor Analysis. *Symposium at Lucy Family Institute for Data & Society*, 7 September, Notre Dame, USA. [poster]

Jiang M., Dang H., **Tong L.** (2023). A Quantitative Review on Language Model Efficiency Research. Large Language Model. *Symposium at International Joint Conference on Artificial Intelligence (IJCAI).* [paper]

Tong, L. & Zhang, Z. (2023). Evaluation of the Bass-Ackward Method for Identifying the Number of Factors. *Annual Meeting of the International Society for Data Science and Analytics.* [slides]

Yu, M., Yu, W., **Tong, L.**, & Jiang, M. (2022). Scientific Comparative Argument Generation. *Document Intelligence Workshop (DI) at ACM SIGKDD International Conference on Knowledge Discovery and Data Mining(KDD).* [paper]

Tong, L., Zhang, Z., Jiang M., & Li J. (2022). Estimating Structural Equation Models with Neural Networks. *Symposium at Lucy Family Institute for Data & Society*, 28 September, Notre Dame, USA. [poster]

Software Development

Tong L., & Zhang, Z. (in prep). TextSEM: An R Package for Structural Equation Modeling with Text Data.

Tong L., & Zhang, Z. (2022). An Online Tool for Bass-Ackward Factor Analysis. Available at https://websem.psychstat.org/apps/bass/.

Xu, J., **Tong L.**, & Zhang, Z. (2020). Webnetvis: An Online Tool for Network Visualization. Available at https://webnetvis.psychstat.org/.

HONORS AND AWARDS

ISLA Graduate Student Research Award ($4,000) University of Notre Dame	2024
First place, 2023 EDM Cup International Educational Data Mining Society (IEDMS)	2023
Most Innovative Project Award Google AI ML Winter Camp, Beijing	2019
First Prize Academic Scholarship Sichuan University	2019
Outstanding Undergraduate Student Award	2017, 2018, 2019

Sichuan University

National Innovation Training Grant for Undergraduates 2017, 2018
Sichuan University

TEACHING EXPERIENCE	**Associate Instructor**, Grad Seminar: Quantitative Study (PSY 63199) Department of Psychology, University of Notre Dame	Fall 2024

Teaching Assistant, Methods for Behavioral Sciences (PSY 30160) Fall 2023, Spring 2022
Department of Psychology, University of Notre Dame

MENTORED
STUDENTS

- Noah Crockett, ND undergraduate in psychology 2024
- Yue Wan, ND exchange undergraduate student 2023 – 2024
- Anna Krush, ND undergraduate student in psychology 2023 – 2024
- Qi Liu, ND visiting undergraduate student in computer science 2022

PROFESSIONAL
LEADERSHIP &
SERVICE

Workshop Co-organized:
- The Second Workshop on Knowledge Augmented Methods for NLP at ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD), 6-10 August 2023, Long Beach, CA, USA. [website]
- Workshops at the Annual Meeting of the International Society for Data Science and Analytics, July 21–24, 2024, Vienna, Austria. [website]

Manuscript Reviewer:
- Journal of Behavioral Data Science (JBDS)
- Journal of Chinese Political Science (JCPS)
- Annual Meeting of the Association for Computational Linguistics (ACL)
- Conference on Empirical Methods in Natural Language Processing (EMNLP)
- China National Conference on Computational Linguistics (CCL)

University Service:
- Departmental DEI Committee Representative 2023 – 2024
- Mentor for STEMentorship Program, Association with Women in Science 2023 – 2024
- Departmental Faculty Meeting Representative 2022 – 2023

TECHNICAL SKILLS
- Programming Languages: Python, R, JavaScript, SQL, HTML and others
- Quantitative Methods: Structural Equation Modeling, Multivariate Analysis, Bayesian Statistics, Item Response Theory
- Machine Learning Topics: Natural Language Processing, Deep Learning, Human-AI Collaborative System