

# Lingbo Tong

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CONTACT INFORMATION	University of Notre Dame 430 Corbett Family Hall Notre Dame, IN 46556	ltong2@nd.edu <a href="https://github.com/lingbo-t">lingbo-t.github.io</a>
RESEARCH INTERESTS	Natural Language Processing, Machine learning, Structural Equation Modeling, Longitudinal Data Analysis, and Computational Social Science.	
EDUCATION	<b>University of Notre Dame</b> , Notre Dame, IN, USA Joint Ph.D. in Quantitative Psychology and Computer Science and Engineering M.S. in Computer Science and Engineering	Expected 2025 2024
	<b>Sichuan University</b> , Chengdu, China B.Eng. in Computer Science and Technology	2020
RESEARCH EXPERIENCE	<b>Lab for Big Data Methodology</b> , University of Notre Dame <i>Graduate Research Assistant, Advisor: Prof. <a href="#">Zhiyong Johnny Zhang</a></i> Research Topic: Integrating machine learning with structural equation modeling	Aug 2020 – present
	<b>DM2 Lab</b> , University of Notre Dame <i>Graduate Research Assistant, Advisor: Prof. <a href="#">Meng Jiang</a></i> Research Topic: Large Language Models (LLMs) for mental health support	Aug 2020 – present
	<b>Natural Language Processing Lab (THUNLP)</b> , Tsinghua University <i>Research Assistant, Advisors: Prof. <a href="#">Zhiyuan Liu</a> &amp; Prof. <a href="#">Huimin Chen</a></i> Research Topic: Social media sentiment analysis and bias detection	Sep 2020 – Jan 2021
PUBLICATIONS	<i>Under Review / In Preparation</i>  <b>Tong, L.</b> , & Zhang, Z. (under review). TextSEM: Structural Equation Modeling for Text Data. Submitted to <i>Structural Equation Modeling: A Multidisciplinary Journal</i> .  <b>Tong, L.</b> , & Zhang, Z. (under review). Neural Network Analysis of Psychological Data: A Step-by-Step Guide. Submitted to <i>Multivariate Behavioral Research</i> .  Wan R., <b>Tong, L.</b> (co-first author), Knearem T., Li T., Huang K., & Wu Q. (under review). Hashtag Re-appropriation For Audience Control on Recommendation-driven Social Media Xiaohongshu. Submitted to <i>the ACM Conference on Human Factors in Computing Systems (CHI)</i> .  <b>Tong, L.</b> & Zhang, Z. (in prep). Incorporating Text as High Dimensional Data in Structural Equation Modeling. Proposal accepted by <i>Psychometrika</i> .  <b>Tong, L.</b> , Turpin M., Crockett N., Zhang Z., & Jiang M. (in prep). Leveraging Large Language Models for Suicide Intervention in Online Crisis Counseling.  <b>Tong, L.</b> , Nguyen, B., Dang H., Hoq, A., Jiang M., & Li T. (in prep). An LLM-based Writing Assistant for Peer-to-Peer Mental Health Support in Online Forums.  <b>Tong, L.</b> & Zhang, Z. (in prep). Investigating Gender Bias in Teaching Evaluation via Large Language Models.	

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 for Accuracy and Interpretability. *Journal of Educational Data Mining*. [paper]

**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. [paper]

**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]

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]

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]

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]

Kuebler, J., **Tong, L.**, & Jiang, M. (2021). Multi-Round Parsing-Based Multiword Rules for Scientific Knowledge Extraction. *IEEE International Conference on Big Knowledge (ICBK)* (pp. 331-338). IEEE. [paper]

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. [paper]

PRESENTATIONS  
AND POSTERS

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

**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]

**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*, 4–6 July, Shanghai, China. [slides]

**Tong, L.**, Liu, Q., Yu, W., Yu, M., Zhang, Z., & Jiang, M. (2023). MHKG: Improving mental health support response generation with event-based knowledge graph. *KnowledgeNLP at AAAI*, 7–14 February, Washington DC, USA. [slides]

Zhang, J., Chen, H., & **Tong, L.** (2022). Structured Gender Bias: How is Gender Cognition Changed and Affected by Digital Communities in China? *Annual Conference of International Association for Media and Communication Research Conference (IAMCR)*, 11–15 July, Beijing, China (online).

**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	<b>Tong L., &amp; Zhang, Z. (2024).</b> TextSEM: An R Package for Structural Equation Modeling with Text Data. Available at [Github link TBA].	
	<b>Tong L., &amp; Zhang, Z. (2022).</b> An Online Tool for Bass-Ackward Factor Analysis. Available at <a href="https://websem.psychstat.org/apps/bass/">https://websem.psychstat.org/apps/bass/</a> .	
	Xu, J., <b>Tong L., &amp; Zhang, Z. (2020).</b> Webnetvis: An Online Tool for Network Visualization. Available at <a href="https://webnetvis.psychstat.org/">https://webnetvis.psychstat.org/</a> .	
HONORS AND AWARDS	<b>ISLA Graduate Student Research Award (\$4,000)</b>	2024
	University of Notre Dame	
	<b>First place, 2023 EDM Cup</b>	2023
	International Educational Data Mining Society (IEDMS)	
	<b>Most Innovative Project Award</b>	2019
	Google AI ML Winter Camp, Beijing	
	<b>First Prize Academic Scholarship</b>	2019
	Sichuan University	
	<b>Outstanding Undergraduate Student Award</b>	2017, 2018, 2019
	Sichuan University	
	<b>National Innovation Training Grant for Undergraduates</b>	2017, 2018
	Sichuan University	
TEACHING EXPERIENCE	<b>Co-Instructor</b> , Grad Seminar: Quantitative Study (PSY 63199)	Fall 2024
	Department of Psychology, University of Notre Dame	
	<b>Teaching Assistant/Lab Instructor</b> , Methods for Behavioral Sciences (PSY 30160)	Fall 2023, Spring 2022
	Department of Psychology, University of Notre Dame	
MENTORED STUDENTS	• Noah Crockett, ND undergraduate student in psychology	2024
	• Anna Krush, ND master's student in applied and computational mathematics and statistics	2023 – 2024
	• Yue Wan, ND exchange undergraduate student in data science	2023 – 2024
	• Ishita Masetty, Penn High School student	2022
	• Qi Liu, ND visiting undergraduate student in computer science	2022
	• Longqing Chen, ND undergraduate student in computer science	2021
PROFESSIONAL LEADERSHIP & SERVICE	<b>Workshop Co-Organizer:</b>	
	• 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. [ <a href="#">website</a> ]	
	• Workshops at the Annual Meeting of the International Society for Data Science and Analytics, 21–24 July, 2024, Vienna, Austria. [ <a href="#">website</a> ]	
	<b>Manuscript Reviewer:</b>	
	• 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:**

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| • 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, Longitudinal Data Analysis, Bayesian Statistics, Item Response Theory
  - Machine Learning Topics: Explainable Machine Learning, Generative models, Dialog System, Empathetic AI, Human-AI Collaboration

## REFERENCES

**Dr. Zhiyong Johnny Zhang**

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