

XINYUAN ZHANG

+13108693948 | xzhang38@nd.edu | <https://xzhang0407.github.io/>

EDUCATION

Ph.D. in Analytics, Information Technology, Analytics, and Operations Department, University of Notre Dame

Aug 2022 – May 2027 (expected)

- Cumulative GPA: 3.97/4.0
- Advisor: Ahmed Abbasi, Junhui (Jeff) Cai
- Dissertation title: *From Data to Actions: Theory-Guided Computational Artifacts for Human-centered Digital Health*

M.S. in Statistics, University of California, Los Angeles

Oct 2020 – June 2022

- Cumulative GPA: 3.93/4.0
- Supervisor: Mark S. Handcock
- Thesis: *An Awareness Model for a Two-sided Matching Market*

Bachelor of Commerce (Major in Finance and Statistics), The University of Sydney

Feb 2017 – Dec 2019

- Cumulative GPA: 3.88/4.0
- Dean's Undergraduate Scholarship (International) 2017-2019

PUBLICATION & WORK IN PROGRESS

Note: †: Author listed alphabetically, *: Equal contribution, ♦: [INFORMS CAI Top AI Journals](#), ★: [NYU TOPS Outlet](#), ☆: [UTD24](#)

Journal Publications

1. †Bevilacqua, M., Oketch, K., Qin, R., Stamey, W., **Zhang, X.**, Gan, Y., Yang, K. Abbasi, A., "When Automated Assessment Meets Automated Content Generation: Examining Text Quality in the Era of GPTs," *ACM Transactions on Information Systems* ♦★, 43(2), 2025, no. 2, pp. 1-36. The all-time second most downloaded ACM TOIS paper (over 34K downloads).

Journal Manuscripts Under Review

1. **Zhang X.**, Cai J., Li J., Abbasi A., "Designing for Digital Traces: Towards Holistically Contextualized Tensor-based Representations," Invited for third round review at *INFORMS Information Systems Research*♦★ (to be submitted in August 2026).

Journal Manuscripts in Progress

1. *Ademaj G., ***Zhang X.**, Cai J., Abbasi A., Sarker S., Sarker S., "Sensemaking in Multimodal, Multi-model Environments: Designing Support for Remote Mental Health Assessments," to be submitted to *INFORMS Management Science*♦★ by July 2026.
2. **Zhang X.**, Cai J., Li J., Abbasi A., "CoSparTA: An R Package for Covariate-Aware Sparsity-Adaptive Tensor Analysis," Preparing for submission to *Journal of Machine Learning Research*♦★ (August 2026).
3. **Zhang X.**, Cai J., Abbasi A., Yoo Y., "Behavioral Grounded Digital Twins in Large-Scale E-commerce." Model development.
4. **Zhang X.**, Cai J., Mousavi R., Kitchens B., Abbasi A., "Theory guided Multi-Source In-Context Learning Framework for LLM-based Health Assessments." Model development.
5. **Zhang X.**, Yoo E., Pedraza-Martinez A., "Volunteer Behavior in Online Communities." Model development.

CONFERENCE PROCEEDING & PRESENTATIONS

Conference Proceedings

1. *Alavo R., ***Zhang X.**, Ademaj G., Cai J., Kwon H., Cotes R., Clifford G., Abbasi A., "Dash-M5H: An Interactive Dashboard for Multi-Modal, Multi-Model Mental Health Assessment", In *Proceedings of the 63rd Annual Meeting of the Association for Computational Linguistics (System Demonstrations)*, San Diego, July 2-7, 2026.
2. *Ademaj, G., ***Zhang, X.**, Abbasi, A., Sarker, S., and Sarker, S. "Designing Support for Sensemaking in Multimodal, Multi-model Mental Health Assessments," In *the 46th AIS International Conference on Information Systems (ICIS)*, Nashville, December 14-17, 2025.
3. **Zhang, X.**, Cai, J., Li, J., Abbasi, A. "Empirical Bayes Tensor Decomposition: A Holistic and Interpretable Representation of Digital Trace Patterns," In *the 46th AIS International Conference on Information Systems (ICIS)*, Nashville, December 14-17, 2025.

Conference Presentations

1. **Zhang X.**, Cai J., Kitchens B., Mousavi R., Abbasi A., "Theory-guided In-context Learning via Parallel Representation for LLM-based Mental Health Assessment," presented at the *INFORMS Workshop on Data Science* and the *INFORMS Annual Meeting*, Atlanta, October 25, 2025.

2. **Zhang X.**, Cai J., Li J., Abbasi A., “Empirical Bayes Tensor Decomposition: A Holistic and Interpretable Representation of Digital Trace Patterns,” presented at the *INFORMS Workshop on Data Science*, Seattle, October 19, 2024.
3. **Zhang X.**, Yoo E., Pedraza-Martinez A., “Volunteer Behavior in Online Communities,” presented at the *Productions and Operations Management conference*, Minneapolis, April 25-19, 2024, and the *INFORMS Annual Meeting*, Seattle, October 20, 2024.
4. **Zhang X.**, Cai J., Li J., Abbasi A., “Towards a holistic representation of online customer journeys: a tensor-based framework,” presented at the *INFORMS Workshop on Data Science*, Phoenix, October 14, 2023.

SELECTED RESEARCH EXPERIENCE

Research Assistant

Human-centered Analytics Lab (HAL), University of Notre Dame

Aug 2022 – Present

■ Tensor-based Analysis of Digital Trace Data (joint project with UVA)

- Develop a novel 3D tensor-based framework supporting holistically contextualized representation of digital user-channel interactions across time and space
- Develop an open-source R package for context-aware sparse tensor analysis
- Analyze 24 million raw online customers digital trace data spanning a 2-year period
- Develop statistical and machine learning models to predict customer purchase decisions with parsimonious user journey representations
- Analyze millisecond level multi-modal data from remote mental health assessment
- Develop statistical and machine learning models to predict patient mental health outcomes

■ VLM and ML based Analysis of Multimodal, Multi-Model Mental Health Data

- Fine-tuned large vision-language models on patient information images for automated depression prediction in remote clinical settings
- Designed and implemented a theory-guided automated clinical note annotation and generation pipeline
- Collaborated on online experiment design examining how different multimodal, multi-model dashboard presentations affect expert sensemaking and remote mental health assessment efficiency

■ Examination and Comparison of Text Content Generated by Humans versus GPTs

- Designed 50 prompts and generated 500 GPT-based essays as benchmark datasets
- Analyzed the effect of prompt type, prompt respondent, and ML model used on the ratings of GPT-generated contents with statistical models

Research Assistant

Department of Statistics, University of California, Los Angeles

July 2021 – June 2022

■ Revealed Preference Model with Continuous Covariates

- Assisted with extending the revealed preference model (RPM) under the continuous covariates setting
- Contributed to the update the rpm R package for RPM with both categorical and continuous covariates
- Implemented various simulation studies, tested and verified the validity of the current updated model

Research Assistant

Behavioral Finance Lab, Tianjin University

Dec 2018 – Feb 2019

■ Big Data Based Financial Innovation and Risk Analysis

- Implemented the Fama-French Model to study how individual investors' sentiments would affect the asset pricing process and transaction behaviors in the stock market

Teaching Experience

Course Instructor:

ITAO 30250 Data Wrangling with R
ITAO 20200 Foundation of Statistics

Spring 2026, University of Notre Dame
Spring 2025, University of Notre Dame

Professional Experience

Reviewed Manuscripts for the Following Journals and Conferences:

Journals: INFORMS Information Systems Research, Manufacturing & Service Operations Management, IEEE intelligent systems, ACM Transactions on Management Information Systems

Conference: Pacific Asia Conference on Information Systems (2023); International Conference on Information Systems (ICIS) (2024, 2025); Hawaii International Conference on System Sciences (HICSS) (2024); INFORMS Data Science Workshop (2024, 2025), INFORMS Conference on Information Systems and Technology (CIST) (2024, 2026), DESRIST (2026), NeurIPS (2026)

SKILLS

Computer Skills: Python (TensorFlow, sklearn, PyTorch), R, STATA, Latex

References

Ahmed Abbasi (Advisor)

Joe and Jane Giovanini Professor of IT, Analytics, and Operations; Academic Director of the Ph.D. Program in Analytics
University of Notre Dame
aabbasi@nd.edu

Junhui Cai (Advisor)

Assistant Professor, IT, Analytics, and Operations,
University of Notre Dame
jcai2@nd.edu

Jingjing Li (Committee Member)

Associate Professor of Commerce; Director, M.S. in Business Analytics Program; Associate Director, Center for Business Analytics; Shannon Center Mid-Career Fellow
McIntire School of Commerce, University of Virginia
Jingjing.Li@virginia.edu