

# Tianjian “TJ” Guo

McCombs School of Business  
The University of Texas at Austin  
2110 Speedway, Austin, TX 78705

Email: [tianjian.guo@mcombs.utexas.edu](mailto:tianjian.guo@mcombs.utexas.edu)  
Phone: 305-766-5278  
Website: [tjguo.com](http://tjguo.com)

## Education

---

**McCombs School of Business, UT Austin**

May 2025

Ph.D. in Information Systems

(Expected)

Committee: Dr. Indranil Bardhan (Chair), Dr. Wen Wen (Co-chair), Dr. Andrew Whinston, and Dr. Ying Ding (School of Information).

**University of North Carolina at Chapel Hill**

May 2019

B.S. in Computer Science and Mathematical Decision Science

## Research Focus

---

My dissertation research focuses on the development and application of artificial intelligence (AI) methods in healthcare to improve patient health outcomes, presented in four inter-related essays. In the first essay of my dissertation, I develop a novel explainable AI approach using graph learning to generate accurate and interpretable prediction of ICU length of stay, specifically focusing on interaction-based explanations supported by evidence-based medicine. In the second essay, I develop a novel prescriptive analytics approach for preventive care that integrates the principles of value-based care with personalized medicine. Specifically, I develop a multi-objective, reinforcement learning (MORL) model to provide personalized preventive care recommendations for diabetes management, optimizing patient quality of life and convenience. Next, in my third essay, I study the role of hospital information integration and its impact on the relationship between social determinants of health and emergency room (ER) utilization using longitudinal patient-level data on ER visits. In my final essay, I develop a novel approach to measure managerial ability in healthcare and implement this approach to study the impact of complementarity between hospital managerial ability and information integration on hospital financial performance and their adoption of risk-based reimbursement models.

## Areas of Interest

- AI applications for predictive and prescriptive modeling of patient health outcomes and risk.
- Economic and clinical impact of health IT applications and analytics.
- Social determinants of health and their impact on healthcare disparities.
- Application of data envelopment analyses to evaluate the impact of managerial ability on hospital performance in value-based care.
- Impact of the use of mobile health devices on patient care utilization and outcomes.

## Journal Publications

---

**Guo T**, Bardhan I, Ding Y, and Zhang S. “An Explainable AI Approach using Graph Learning to Predict ICU Length of Stay”. October 2024. Forthcoming at *Information Systems Research*.

**Guo T**, Bardhan I, and Khurshid A. “Social Determinants of Health and ER Utilization: Role of Information Integration during COVID-19”. *ACM Transactions on Management Information Systems*. October 2023, 14, 4.

Antunes N, **Guo T**, and Pipiras V. “Sampling methods and estimation of triangle count distributions in large networks”. *Network Science*, 2021, 9 (S1), S134-S156.

Antunes N, Bhamidi S, **Guo T**, Pipiras V, & Wang B. “Sampling based estimation of in-degree distribution for directed complex networks”. *Journal of Computational and Graphical Statistics*, 2021, 30(4), 863-876.

## Working Papers

---

**Guo T**, Wen W, and Bardhan I. “Care Now or Pay Later? A Personalized Recommendation Approach for Value-based Healthcare”. 2024. Revise and resubmit for second round review at *Information Systems Research*.

**Guo T**, Wen W, and Bardhan I. “Managerial Ability and Risk-based Reimbursement: The Role of Hospital Information Integration”. 2024. Under preparation for submission to *MIS Quarterly*.

Bardhan I, Clifford, G, Basit M, **Guo T**, and Willett D. “Impact of Wearable Devices on Patient Engagement and Health Outcomes: Prototype of an mhealth technology platform” 2024. Under preparation for submission to *Journal of Medical Internet Research*.

## Conference Presentations

---

**Guo T**, Zhang S, Ding Y, and Bardhan I “An Explainable AI Approach using Graph Learning to Predict ICU Length of Stay”. Earlier versions of this paper were presented at:

- Conference on Health IT and Analytics (CHITA), Oct. 2020.
- Conference on Information Systems and Technology (CIST), November 2020.
- AIS Health Information Technology Symposium, December 2020.
- INFORMS Healthcare Conference, July 2021.
- Workshop on Information Systems and Economics (WISE), December 2021, Austin, TX.
- Conference on Health IT and Analytics (CHITA), March 2022, Washington D.C.
- Conference on Information Systems and Technology (CIST), October 2022, Indianapolis, IN.
- INFORMS Healthcare Conference, July 2023, Toronto, ON, Canada.
- Workshop on Information Technologies and Systems (WITS), Dec. 2023, Hyderabad, India.

**Guo T**, Bardhan I, and Khurshid A. “Social Determinants of Health and ER Utilization: Role of Information Integration during COVID-19” *Conference on Health IT and Analytics (CHITA)*, March 2022, Washington D.C.

**Guo T**, Wen W, and Bardhan I “Care Now or Pay Later? A Personalized Recommendation Approach for Value-based Healthcare.” Earlier versions of this paper were presented at:

- Conference on Health IT and Analytics (CHITA), May 2023, Washington D.C.
- Symposium on Statistical Challenges in Electronic Commerce Research, June 2023, Bogotá.
- INFORMS Healthcare Conference, July 2023, Toronto, ON, Canada.
- Conference on Information Systems and Technology (CIST), October 2023, Phoenix, AZ.
- International Conference on Information Systems (ICIS), December 2023, Hyderabad, India.
- Conference on Information Systems and Technology (CIST), October 2024, Seattle, WA.

## Teaching

---

### Course Instructor

MIS 301: Introduction to Information Technology Management Fall 2022

- Instructor Evaluation 4.08/5.

### Teaching Assistant

MIS 382N: Predictive Analytics & Data Mining (MBA elective) Spring 2024

MIS 375: Strategic Information Technology Management Spring 2022, Spring 2023

MIS 382N: Healthcare Technology Innovation (MBA elective) Spring 2020, Spring 2022

MIS 381N: Strategies for Digital Transformation (MBA elective) Spring 2022

MIS 382N: Digital Health Innovation Spring 2021

MIS 381N: Strategies for Networked Economy (MBA elective) Fall 2019, Fall 2020, Spring 2021

STA 306: Elementary Business Statistics Spring 2020

## Service

---

### Reviewer

- Management Science
- International Conference on Information Systems (ICIS): 2023, 2024
- Conference on Information Systems and Technology (CIST): 2022
- The ACM Web Conference: 2021
- AIS Health Information Technology Symposium: 2020

### Volunteer

- Workshop on Information Systems and Economics (WISE): 2021

## Awards and Honors

---

Doctoral Consortium Fellow, Conference on Information Systems and Technology (CIST)	2024
Doctoral Consortium Fellow, International Conference on Information Systems (ICIS)	2023
University Graduate Continuing Fellowship, UT Austin	2023
Professional Development Award, UT Austin	2023
Doctoral Consortium Fellow, Conference on Health IT and Analytics (CHITA)	2022

## References

---

### **Dr. Indranil Bardhan**

Charles and Elizabeth Prothro Regents Chair in Health Care Management  
Department of Information, Risk, and Operations Management  
McCombs School of Business  
University of Texas at Austin  
[indranil.bardhan@mcombs.utexas.edu](mailto:indranil.bardhan@mcombs.utexas.edu)

### **Dr. Wen Wen**

Associate Professor  
Department of Information, Risk, and Operations Management  
McCombs School of Business  
University of Texas at Austin  
[wen.wen@mcombs.utexas.edu](mailto:wen.wen@mcombs.utexas.edu)

### **Dr. Ying Ding**

Bill & Lewis Suit Professor  
School of Information  
University of Texas at Austin  
[ying.ding@austin.utexas.edu](mailto:ying.ding@austin.utexas.edu)