Yi Tang

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EDUCATION

University of Minnesota - Twin Cities, Carlson School of Management — Minneapolis, MN
Ph. D. in Business Administration (Major: Supply Chain & Operations) — May 2024 (expected)
Advisor: Kingshuk K. Sinha

University of Minnesota - Twin Cities, School of Statistics — Minneapolis, MN
M.S. in Statistics — May 2024 (expected)

Tsinghua University, Department of Industrial Engineering — Beijing, China
B.E. in Industrial Engineering — 2015

RESEARCH INTERESTS AND METHODOLOGY

Healthcare operations; healthcare disparities; information technology; mobile apps; chatbot; telehealth; diversity, equity, and inclusion (DEI)

Econometrics; causal inference; text analytics and natural language processing; machine learning; case study; intervention-based research

WORKING PAPERS / WORK IN PROGRESS

1. Towards Achieving Mental Health Equity in the Underserved Population: Evaluating the Potential of Mobile Apps (with Kingshuk K. Sinha, Adam Moen, Necati Ertekin), *under 3rd round review* at *Production and Operations Management (2nd round: minor revision)*.
    - 2023 POMS College of Service Operations Management (CSOM) Best Student Paper Finalist

2. Designing a Mental Health Service Recommender System: Sensing and Responding to Personalized Support Needs and Advancing Equity in Mental Healthcare Delivery (with Kingshuk K. Sinha, Adam Moen), *research complete, targeting Management Science*. Sponsored by Cisco Research Grant (Tech for Healthcare, $180,000).

3. The Impact of Telehealth on Mental Health Service Usage and Quality: An Empirical Investigation (with Eric Xu), *manuscript under preparation.*

4. Does Diverse Federal Agency Employment Help to Advance Diversity in Federal Government Procurement? An Empirical Investigation (with Dwaipayan Roy), *data analysis in progress.*

RESEARCH GRANTS & FELLOWSHIPS

Cisco Research Grant (Tech for Healthcare, $180,000) — 2021-2023

- In 2021, Cisco Systems Inc. partnered with the University of Minnesota to launch a master grant program, fostering the development of innovative technologies in areas such as healthcare, ethics in artificial intelligence, and edge computing. Our proposal (Working Paper #2) was among the

chosen few, securing a grant of $180,000 from Cisco. This funding facilitated our research into harnessing artificial intelligence to effectively connect distressed individuals with professional mental health services. As context, out of the numerous submissions, only six research projects across the university received funding under the 2021 Cisco/UMN master research agreement (link). We successfully concluded this research project and presented our findings to the Cisco team in May 2023. We are in the final stages of preparing a manuscript detailing our discoveries and anticipate submitting it to *Management Science* by early 2024.

University of Minnesota Leadership in Equity, Inclusion and Diversity Fellowship ($33,000) 2020-2021

- The University of Minnesota Graduate School Leadership in Equity, Inclusion and Diversity (LEID) Fellowship rewards Ph.D. candidates who have demonstrated a commitment to diversity, equity, inclusion and/or social justice through scholarly activity and/or climate enhancing initiatives. In 2020-2021 school year, the Graduate School granted a total of 15 LEID fellowships to deserving PhD candidates across the university (link to the announcement of the 2020-2021 LEID Fellows).

TEACHING EXPERIENCE

Instructor, Carlson School of Management, University of Minnesota - Twin Cities

- SCO 3001 - Supply Chain and Operations (Student Rating: 4.8/6.0) Fall 2018
  Designed the course; created the syllabus and course materials including lecture slides, individual / group assignments, and exam materials; led group discussion and simulation projects; advised student group projects; taught classic qualitative/quantitative supply chain and operations management topics including operations strategy, product design, process management, quality control, inventory management, forecasting, production management, lean manufacturing, and supply chain management.

Teacher Training Program

- Program for the Advancement of Classroom Excellence (PACE Program), Supply Chain & Operations Department, University of Minnesota – Twin Cities 2019
- Coursework: Teaching in Higher Education, University of Minnesota – Twin Cities 2018

Teaching Assistant, Carlson School of Management, University of Minnesota - Twin Cities

MS and MBA level:

- SCO 6045 - Strategic Sourcing
- SCO 6041 - Project Management
- SCO 6072 - Managing Technologies in the Supply Chain
- MBA 6120 / CMBA* 5810 - Data Analysis and Statistics for Managers
- MBA 6220 - Operations Management

*: Executive MBA

Undergraduate level:

- SCO 3072 - Managing Technologies in the Supply Chain
- SCO 3001 - Introduction to Operations Management
- SCO 2550 - Business Statistics: Data Sources, Presentation, and Analysis

INVITED SEMINARS & CONFERENCE PRESENTATIONS

"Towards Achieving Mental Health Equity in the Underserved Population: Evaluating the Potential of Mobile Apps"

- 2023 33rd Annual POMS Conference, Orlando, FL, U.S.A.
- 2023 18th Annual Product and Service Innovation Conference, Park City, Utah, U.S.A.
- 2022 DSI Annual Conference, Houston, TX, U.S.A.
- 2021 INFORMS Annual Conference, Anaheim, CA, U.S.A.
- 2019 1st Midwest Healthcare Management Workshop, UIUC, Illinois, U.S.A.

"Designing a Mental Health Service Recommender System: Sensing and Responding to Personalized Support Needs and Advancing Equity in Mental Healthcare Delivery"

- 2023 3rd Midwest Healthcare Management Workshop, UIUC, Illinois, U.S.A.
- 2023 18th Annual Product and Service Innovation Conference, Park City, Utah, U.S.A.
- 2022 INFORMS Annual Conference, Indianapolis, Indiana, U.S.A.

"The Impact of Telemedicine on Mental Healthcare Service Usage and Quality: An Empirical Investigation"

- 2023 POMS Annual Conference, Orlando, FL, U.S.A.
- 2022 INFORMS Annual Conference, Indianapolis, Indiana, U.S.A.

HONORS / AWARDS

Distinguished Student of the 2012-2013 Academic Year of Tsinghua University	2014
Scholarship of Outstanding Student Leader, Tsinghua University	2012

FIELD SERVICE

Session chair, "Healthcare in Underserved Community", Decision Sciences Institute 52nd Annual Conference (2021)
Ad hoc reviewer for *Decision Sciences Journal, 2020 Academy of Management Annual Conference*

PROFESSIONAL MEMBERSHIPS

Production and Operations Management Society; Institute for Operations Research and the Management Sciences; Decision Sciences Institute

SKILLS

Languages: English (Fluent); Mandarin Chinese (Fluent); Japanese (Advanced)
Software programs: Stata; MATLAB; R; C++; Python

REFERENCES

Kingshuk K. Sinha (Advisor)
Professor, Department Chair and Elmer L. Andersen Chair in Sustainable Supply Chain
Supply Chain & Operations Department
Carson School of Management
University of Minnesota – Twin Cities
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Necati Ertekin (Committee Member)
Assistant Professor
Supply Chain & Operations Department
Carson School of Management
University of Minnesota – Twin Cities
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Steven Huchendorf (Teaching Reference)
Senior Lecturer, Director of the PACE Program
Supply Chain & Operations Department
Carson School of Management
University of Minnesota – Twin Cities
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Appendix: Courses Taken during Ph. D. Education

Ph. D. Seminars

Course Name	Instructor	Description
Management of Technological Operations	Kingshuk K. Sinha	Theories and models used to address problems of managing technological operations and operations in manufacturing and service firms. Technology strategy, economic/organizational perspectives on technology, productivity analysis, technology evaluation, project selection and evaluation, learning, etc.
Information Systems Research Seminar in Social Media	Yuqing (Ching) Ren	Theories and methods around phenomena related to social media and online communities. Topics in motivation, contribution, identity, collaboration and innovation, electronic word-of-mouth and social networks, community dynamics, leadership, and evolution. Qualitative and quantitative research methods.
Research Methods in Health Care	Bryan Dowd	Empirical research methods commonly used in analysis of health services research and health policy problems.
Supply Chain Management	Mili Mehrotra	Research on forecasting, inventory control, materials requirements planning, just-in-time manufacturing, aggregate planning, scheduling, routing, sequencing, and dispatching in manufacturing and service industries with a focus on analytical modeling methods.
Behavioral Operations	Karen Donohue	Research/review classic behavioral literature in economics and other business disciplines; identify behavioral problems within operations contexts; test/analyze operations phenomenon through experimental study, empirical methods, and analytical modeling. Supply chain problems.
Research in Operations Strategy	Rachna Shah	This seminar spans the classic operations strategy literature and emerging, novel topics with a special focus on empirical and econometric research methods.
Quality Management Research	Kevin Linderman	Research literature, methods, and results. Research on quality strategy, economics of quality, statistical process control, vendor management, off-line quality, and quality practice.
Theory Building and Research Design	Andrew Van de Ven	Problem formulation, conceptual modeling, theory building, and research design in the social and behavioral sciences.
Teaching in Higher Education	Paul Ching	Teaching methods/techniques. Active learning, critical thinking, practice teaching, and preparing a portfolio to document/reflect upon teaching. Readings, discussion, peer teaching, e-mail dialog, reflective writing, co-facilitation of course.

Methodology Courses

Course Name	Description
Machine Learning	Models of learning. Supervised algorithms such as perceptrons, logistic regression, and large margin methods (SVMs, boosting). Hypothesis evaluation. Learning theory. Online algorithms such as winnow and weighted majority. Unsupervised algorithms, dimensionality reduction, spectral methods. Graphical models.
Introduction to Data Mining	Data pre-processing techniques, data types, similarity measures, data visualization/exploration. Predictive models (e.g., decision trees, SVM, Bayes, K-nearest neighbors, bagging, boosting). Model evaluation techniques, Clustering (hierarchical, partitional, density-based), association analysis, anomaly detection. Case studies from areas such as earth science, the Web, network intrusion, and genomics. Hands-on projects.

Predictive Learning	Basic elements and application areas of artificial intelligence (AI) related to design and implementation of expert systems (ES). Knowledge representation, reasoning under uncertainty, ES and their environment, planning, natural language processing (NLP), intelligent computer-aided instruction (ICAI), and AI tools (software and hardware).
Econometric Analysis I	Classical multiple linear regression, stochastic regressors, heteroscedasticity, autocorrelated disturbances, panel data, discrete dependent variables.
Econometric Analysis II	Specification tests, instrumental variables, heteroscedasticity, panel data, simultaneous equations, bootstrap methods, limited dependent variable models, semiparametric estimation, econometrics of program evaluation, general method of moments, time series, hazard models.
Theory of Statistics I	Logical development of probability, basic issues in statistics. Probability spaces. Random variables, their distributions and expected values. Law of large numbers, central limit theorem, generating functions, multivariate normal distribution.
Theory of Statistics II	Statistical inference. Sufficiency. Likelihood-based methods. Point estimation. Confidence intervals. Neyman-Pearson hypothesis testing theory. Introduction to theory of linear models.
Applied Statistical Methods 1: Advanced Regression Techniques	Linear/generalized linear models, modern regression methods including nonparametric regression, generalized additive models, splines/basis function methods, regularization, bootstrap/other resampling-based inference.
Applied Statistical Methods 2: Design of Experiments	Design experiments/analyze data with fixed effects, random/mixed effects models. ANOVA for factorial designs. Contrasts, multiple comparisons, power/sample size, confounding, fractional factorials. Computer-generated designs. Response surfaces. Multi-level models. Generalized estimating equations (GEE) for longitudinal data with non-normal errors.
Analysis of Categorical Data	Varieties of categorical data, cross-classifications, contingency tables. Tests for independence. Combining 2x2 tables. Multidimensional tables/loglinear models. Maximum-likelihood estimation. Tests for goodness of fit. Logistic regression. Generalized linear/multinomial-response models.
Nonparametric Methods	Order statistics. Classical rank-based procedures (e.g., Wilcoxon, Kruskal-Wallis). Goodness of fit. Topics may include smoothing, bootstrap, and generalized linear models.
Statistical Computing	Statistical programming, function writing, graphics using high-level statistical computing languages. Data management, parallel computing, version control, simulation studies, power calculations. Using optimization to fit statistical models. Monte Carlo methods, reproducible research.
Statistical Consulting	Principles of effective consulting/problem-solving, meeting skills, reporting. Aspects of professional practice/behavior, ethics, continuing education.