Zihan Zhang (She/Her)

(on the 2025–2026 academic job market)

H. Milton Stewart School of Industrial and Systems Engineering Atlanta, GA, USA ☑ zihan.zhang@gatech.edu www.zihan-zhang.com in lotty-zhang

Education

2021-Now **Ph.D. Candidate**, *Industrial Engineering*, Georgia Institute of Technology, USA. Concentration: System Informatics and Control; Minor: Machine Learning

Advisors: Dr. Jianjun (Jan) Shi & Dr. Kamran Paynabar

2022–2024 M.Sc., Computational Science and Engineering, Georgia Institute of Technology.

2019–2021 M.A.Sc., Mechanical and Industrial Engineering, University of Toronto, Canada.

2015–2019 **B.Eng.**, Safety Engineering, Beihang University, China.

Honors & Awards

Paper Awards IISE DAIS Case Study Competition (Winner), 2024

Data Analytics and Information Systems (DAIS) Division, Institute of Industrial and Systems Engineers (IISE)

ASA SPES + Q&P Student Paper Competition (Winner), 2024

Physical and Engineering Sciences (SPES) and Quality & Productivity (Q&P) Sections, American Statistical Association (ASA)

INFORMS ORMS Tomorrow Mini-Poster Competition (Honorable Mention), 2023

Institute for Operations Research and the Management Sciences (INFORMS)

ASA SPES + Q&P Student Paper Competition (Finalist), 2023

Physical and Engineering Sciences (SPES) and Quality & Productivity (Q&P) Sections, American Statistical Association (ASA)

INFORMS QSR Section Best Student Paper Award (Winner), 2022 Quality, Statistics, and Reliability (QSR) Section, Institute for Operations Research and the Management Sciences (INFORMS)

- O Selected from over 30 high-quality submissions.
- o Received during the 2nd year of my Ph.D. and as a new INFORMS member.

Funding NSF CMMI Panel Fellow, 2025

Panel Game Changer Academies for Advancing Research Innovation, Division of Civil, Mechanical and Manufacturing Innovation (CMMI), National Science Foundation (NSF)

Fellowship & Novelis Graduate Scholarship (\$8,000), 2025

Scholarship Novelis Innovation Hub at Georgia Tech

Bonder Scholar Grant (\$430), 2024

Institute for Operations Research and the Management Sciences (INFORMS)

DS Student Scholarship, 2024

INFORMS Workshop on Data Science, Institute for Operations Research and the Management Sciences (INFORMS)

George Fellowship (\$5,000), 2024

George Family Foundation

• Honored as a George Fellow for leadership in advancing **healthcare systems**.

Richard A. Freund International Scholarship (\$5,000), 2024

American Society for Quality (ASQ)

John S.W. Fargher Scholarship (\$1,000), 2024

Institute of Industrial and Systems Engineers (IISE)

Huston Scholarship (\$3,000), 2023

International Society of Automation (ISA)

Aerospace and Test Measurement Division Scholarship (\$2,000), 2023

International Society of Automation (ISA)

Gilbreth Memorial Scholarship (\$3,500), 2023

Institute of Industrial and Systems Engineers (IISE)

Career Development Fund (\$400), 2022, 2023

Georgia Institute of Technology

Richard Iannacone ISyE Fellowship (\$9,000), 2021, 2022

H. Milton Stewart School of Industrial and Systems Engineering, Georgia Institute of Technology

Stewart Topper Fellowship (\$5,000), 2021, 2022

H. Milton Stewart School of Industrial and Systems Engineering, Georgia Institute of Technology

Metcalfe Family Graduate Fellowship for Sustainable Energy Research (\$5,500), 2021

Centre for Global Engineering, University of Toronto

Bert Wasmund Graduate Fellowship in Sustainable Energy Research (\$1,150), 2021

Department of Mechanical and Industrial Engineering, University of Toronto

Faculty of Applied Science and Engineering Endowed Fellowship (\$2,000), 2020

Department of Mechanical and Industrial Engineering, University of Toronto

University of Toronto Fellowship (\$35,376), 2019, 2020, 2021

University of Toronto

National Scholarship, 2018

Teaching Tech to Teaching Certificate, 2023

Center for Teaching and Learning, Georgia Institute of Technology

Center for the Integration of Research, Teaching, and Learning Associate Level Certificate, 2022

Center for Teaching and Learning, Georgia Institute of Technology

Advanced University Teaching Preparation Certificate, 2021

Center for Teaching Support & Innovation, University of Toronto

Teaching Fundamentals Certificate, 2019

Center for Teaching Support & Innovation, University of Toronto

Leadership Phillip J. and Delores A. Scott Graduate Student Health and Wellness Award, 2024, 2025

H. Milton Stewart School of Industrial and Systems Engineering, Georgia Institute of Technology

- O Received twice, for the 2023–2024 and 2024–2025 academic years.
- Awarded for organizing activities and advocating for student physical and mental health, as well as engaging in challenging physical activities to promote mental well-being.

STARS AI Scholar, 2024

STARS AI Scholars Program supported by STARS Computing Corps, INVITE AI Institute, and EngageAI Institute

INFORMS Judith Liebman Award, 2024

Institute for Operations Research and the Management Sciences (INFORMS)

o Awarded in recognition of outstanding student volunteers who have been "moving spirits" within their universities, student chapters, and the institute.

INFORMS Student Chapter Annual Award – Summa Cum Laude, 2024 Institute for Operations Research and the Management Sciences (INFORMS)

- Awarded to the INFORMS Georgia Tech Student Chapter for exceptional performance during the 2023-2024 academic year.
- Served as Chapter President during this period.

Graduate Leadership Development Fellow, 2024

Women in Engineering, Georgia Institute of Technology

Professional Development

Professional Rising Stars in Computational and Data Sciences Workshop, 2025

Development UT Austin's Oden Institute for Computational Engineering and Sciences and Los Alamos, Lawrence Livermore, and Sandia National Laboratories

Tandon Faculty First Look Fellowship Program, 2025

NYU Tandon School of Engineering

IISE Future Faculty Fellow Program, 2024

Institute of Industrial and Systems Engineers (IISE)

INFORMS Doctoral Student Colloquium, 2024

Institute for Operations Research and the Management Sciences (INFORMS)

o Received the Bonder Scholar Grant from INFORMS to attend.

New England Future Faculty Workshop, 2024

Co-organized by Northeastern University, Harvard Medical School, Boston University, and Bay Path University

INFORMS To My Younger Self (TMYS) Program, 2024

Institute for Operations Research and the Management Sciences (INFORMS)

Cornell Operations Research and Information Engineering (ORIE) Young Researchers Workshop, 2023

Cornell University

Travel Do-Bui International Travel Award (\$500), 2024

Awards Caucus for Women in Statistics and Data Science, American Statistical Association (ASA)

SPES Student Award (\$500), 2024

Physical and Engineering Sciences (SPES) Section, American Statistical Association (ASA)

SIAM Student Travel Award (\$650), 2024

Society for Industrial and Applied Mathematics (SIAM)

SGA-CoE Conference Fund (\$1,500), 2022, 2023, 2024

Student Government Association (SGA) & College of Engineering (CoE), Georgia Institute of Technology

ISyE Third-year Progress Travel Award (\$2,000), 2023

H. Milton Stewart School of Industrial and Systems Engineering, Georgia Institute of Technology

ISyE First-year Fellows Travel Award (\$1,000), 2021

H. Milton Stewart School of Industrial and Systems Engineering, Georgia Institute of Technology

SGS Conference Grant, 2021

University of Toronto

Others Beijing Outstanding Graduate, 2019

 $\mathbf{1}^{st}$ prize (Beijing) in Mechanical Innovation and Design Competition, 2017

1st prize (Beijing) in Mathematical Modelling Contest, 2017

3rd prize in National Undergraduate Mathematical Contest, 2016

Publications

Citations: 367 (Google Scholar, as of March 25, 2025)

Journal (Peer-Reviewed)

[J9] **Zihan Zhang**, Kamran Paynabar, Jianjun Shi. Tensor-based Feedback Control for Locally Structured High-dimensional Streaming Data under Limited Control Capability, *IISE Transactions*, Published.

- Here is a short presentation about the work.
- 2024 ASA SPES + Q&P Student Paper Competition (Winner)
- 2023 INFORMS ORMS Tomorrow Mini-poster Competition (Honorable Mention)
- [J8] Zihan Zhang, Shancong Mou, Kamran Paynabar, Jianjun Shi. Temporal Control for Partially Observed High-Dimensional Streaming Data, *Technometrics*, 2024, 66(2): 227-239.
 - Here is a short presentation about the work.
 - o 2022 INFORMS QSR Section Best Student Paper Award (Winner)
 - 2023 ASA SPES + Q&P Student Paper Competition (Finalist)
- [J7] **Zihan Zhang**, Alina Gorbunova, Keunho Rhew, Jianjun Shi. A Review of Prognostics Methods for Packaged Electronics: From a Structure-Aware System-Level Perspective, *IEEE Transactions on Reliability*, Accepted.
- [J6] **Zihan Zhang**, Shancong Mou, Mostafa Reisi-Gahrooei, Massimo Pacella, Jianjun Shi. Federated Multiple Tensor-on-Tensor Regression (FedMTOT) under Data-Sharing Constraints, *Technometrics*, 2024, 66(4), 548–560.
 - Here is a short presentation about the work.
- [J5] **Zihan Zhang**, Yeonjeong Jeon, Jongseong Jang, Chi-Guhn Lee. A Pattern-Driven Stochastic Degradation Model for the Prediction of Remaining Useful Life of Rechargeable Batteries, *IEEE Transactions on Industrial Informatics*, 2022, 18(12): 8586-8594.
- [J4] Zihan Zhang, Li Yang. Postponed Maintenance Scheduling Integrating State Variation and Environmental Impact, Reliability Engineering and System Safety, 2020, 202: 107065.
- [J3] **Zihan Zhang**, Li Yang. State-Based Opportunistic Maintenance with Multi-Functional Maintenance Windows, *IEEE Transactions on Reliability*, 2021, 70(4): 1481-1494.
- [J2] Li Yang, Gaoyang Li, Zihan Zhang, Xiaobing Ma, Yu Zhao. Operations & Maintenance Management of Wind Turbines Integrating Wind and Aging Information, IEEE Transactions on Sustainable Energy, 2021, 12(1): 211-221.
- [J1] Tianyi Wu, Li Yang, Xiaobing Ma, Zihan Zhang, Yu Zhao. Dynamic Maintenance Strategy with Iteratively Updated Grouping Information, *Reliability Engineering and System Safety*, 2020, 197: 106820.

Conference (Peer-Reviewed)

- [C2] Zihan Zhang, Chi-Guhn Lee. A Novel Pattern-driven Stochastic Process for End-of-Life Forecasting, 11th IMA International Conference on Modelling in Industrial Maintenance and Reliability, Jun 2021.
- [C1] Fuchun Ren, Jian Jiao, **Zihan Zhang**, Tingdi Zhao. A Resilience Engineering-Based Analysis Framework for Network Systems, *International Conference on Applied Mathematics, Modeling and Simulation*, Dec 2017.

Funding Experience

PI & Co-PI

- Jan 25-Dec 25 **Co-PI**, Sustaining Momentum: INFORMS K-12 Education Outreach and Networking Program
 - o Sponsor: Institute for Operations Research and the Management Sciences (INFORMS)
 - o Amount: \$3,000
 - o Collaborators: Kenneth Murphy (University of California, Irvine) & Fenglian Pan (University of Arizona) & Yifeng Wang (Georgia Institute of Technology)
- Jan 24-Dec 24 Co-PI, INFORMS K-12 Education Outreach and Networking Program
 - o Sponsor: Institute for Operations Research and the Management Sciences (INFORMS)
 - o Amount: \$4.968
 - o Collaborators: Neil Desnoyers (Saint Joseph's University) & Fenglian Pan (University of Arizona)

Significant Contributor

- Feb 24-Feb 25 Reliability and Prognostics Study for Thermal-Mechanical Failures of Memory Product
 - o Sponsor: Samsung Electronics
 - o Amount: \$150,000
 - o Involvement: Led the proposal writing and served as a project leader, managing finite element analysis simulations, methodology development, biweekly stakeholder meetings, and preparation of monthly, midterm, and annual reports. Delivered outcomes seamlessly integrated into downstream workflows and developed three research papers.

Research Experience

- Aug 21-Now **Graduate Research Assistant**, H. Milton Stewart School of Industrial and Systems Engineering, Georgia Institute of Technology
 - o National Science Foundation (NSF): EAGER: Real-D: Integrating Data-Driven Methods and Engineering Models in Manufacturing Systems
 - o Ford Motor Company: Active Learning for Consumer Feedback Classification
 - o **Samsung Electronics**: Reliability and Prognostics Study for Thermal-Mechanical Failures of Memory Product
- Sept 19-Aug Graduate Research Assistant, Centre for Maintenance Optimization and Reliability Engineering, *University of Toronto*
 - Natural Sciences and Engineering Research Council of Canada (NSERC): Data-Driven Condition-Based Maintenance Models
 - o **LG Electronics Canada**: Transfer Learning for Continual Learning in Non-Stationary Environments

Teaching Experience

Course Lecturer

- Sum 25 ISyE 3039 Methods for Quality Improvement, Undergraduate Level, Georgia Institute of Technology
 - o Class Size: TBD.

Guest Lecturer

- Spr 24,25 ISyE 7204 **Informatics in Production & Service Systems**, Graduate Level, Georgia Institute of Technology
 - o Main Instructor: Dr. Jianjun Shi.
 - o Class Size: Approximately 10 students or more.
 - Duties: Deliver the self-designed module "Tensor-based Process Control and Prognostics with Applications in Semiconductor Manufacturing," including 8 lectures with slides, assignments, codes, and simulation demo."
- Fal 23,24 ISyE 3039 Methods for Quality Improvement, Undergraduate Level, Georgia Institute of Technology
 - o Main Instructor: Dr. Jianjun Shi.
 - Class Size: Approximately 40 students or more.
 - o Duties: Deliver modules on "Design of Experiments" and "Minitab," along with review sessions.

Teaching Assistant

Spr 24; Fal ISyE 8803 **Topics on High-Dimensional Data Analytics**, Graduate Level, 23; Sum 23 Georgia Institute of Technology

- o Instructor: Dr. Kamran Paynabar.
- o Class Size: Approximately 100 students or more.
- o Duties: Manage office hours, assignment and exam creation, as well as grading.
- Fal 21-24; Spr ISyE 3039 Methods for Quality Improvement, Undergraduate Level, Georgia 22 Institute of Technology
 - o Instructor: Dr. Jianjun Shi.
 - o Class Size: Approximately 40 students or more.
 - o Duties: Conduct office hours, grading, review sessions, and Minitab tutorials.
 - Win 21 MIE 263 Stochastic Operations Research, Undergraduate Level, University of Toronto
 - o Instructor: Dr. Janet Lam.
 - o Class Size: 118 students.
 - o Duties: Conduct weekly tutorials, set assignments, and handle grading.
 - Win 21 MIE 1615 Markov Decision Processes, Ph.D. Level, University of Toronto
 - o Instructor: Dr. Chi-Guhn Lee.
 - o Class Size: 8 students.
 - o Duties: Manage assignment and exam creation, grading, and presentation evaluation.
 - Fal 20 MIE 1723 Engineering Asset Management, Graduate Level, University of Toronto
 - o Instructors: Dr. Andrew Jardine & Dr. Sharareh Taghipour.
 - o Class Size: 40 students.
 - o Duties: Provide exam tutorials, create and grade exams/quizzes, and offer online support to instructors.
 - Fal 20 SCS 3531 **Physical Asset Management**, *Professional Program*, University of Toronto
 - o Main Instructor: Dr. Andrew Jardine.
 - o Class Size: 15 students.
 - o Duties: Manage the program schedule and provide online support to instructors.

Mentoring Experience

Graduate Students

- 2021 Mr. Dhavalkumar Patel, Industrial Engineering, University of Toronto
 - o Topic: Physics-informed machine learning for lifetime analysis

Undergraduate Students

- 2025 Mr. **Joshua Do**, *Mechanical Engineering*, Georgia Institute of Technology Oppic: Finite element analysis-assisted lifetime prediction
- 2025 Mr. Adithya Balaji, Aerospace Engineering, Georgia Institute of Technology

 O Topic: Finite element analysis-assisted lifetime prediction
- 2023 Ms. Yi Tong, Industrial Engineering, Georgia Institute of Technology

 o Topic: Tensor-based automatic process control
- 2020 Ms. Jin Gong, Industrial Engineering, University of Toronto
 - o Topic: Data-driven prognostics for rechargeable batteries
 - o Award: Mitacs Research Training Award

Service

Professional Service

Adhoc Journal & Conference Reviewer

- o IISE Transactions
- o IEEE Transactions on Automation Science and Engineering
- o IEEE Transactions on Neural Networks and Learning Systems
- o IEEE Transactions on Industrial Electronics
- o IEEE Transactions on Reliability
- o ASME Journal of Manufacturing Science and Engineering
- o ASME Journal of Computing and Information Science in Engineering
- ASME Open Journal of Engineering
- o Journal of Intelligent Manufacturing
- o Reliability Engineering and System Safety
- o IISE Annual Conference
- o INFORMS Workshop on Data Science
- o North American Manufacturing Research Conference
- o DSI Annual Conference
- o Vision-based Industrial Inspection (VISION) Workshop @ CVPR, ECCV
- o International Conference on Mechanical, Electric and Industrial Engineering

Board Member

- o Vice-chair, INFORMS Education Outreach Committee (2024-Now)
- o Co-chair, INFORMS Education Outreach Committee K-12 Subcommittee (2022-Now)
 - O Initiated INFORMS K-12 Education Outreach and Networking Program.

- o Student Liaison, INFORMS Women in Operations Research & Management Science (2024-Now)
- o Co-lead Editor, INFORMS Student Magazine ORMS Tomorrow (2024)
- Social Media Coordinator, INFORMS Student Magazine ORMS Tomorrow (2023)

Session Chair

- o K-12 Outreach Panel: Collaboration Across Institutions, 2024 INFORMS Annual Meeting
- o K-12 Education Outreach in a Post-COVID World, 2023 INFORMS Annual Meeting
- o Advanced Machine Learning I, 2023 IISE Annual Conference & Expo
- o Data Analysis Leveraging Novel Machine Leaning and Artificial Intelligence Methodologies IV, 2023 IISE Annual Conference & Expo

Co-Organizer

- o Data Challenge, 2023 CVPR VISION workshop
- o Program Coordinator Team (Student Liaison), INFORMS To My Younger Self (TMYS) Program

Ambassador

o IEEEXtreme 15.0 Toronto Section Ambassador (2021)

Judge & Reviewer for Competition/Award

o ASA Statistics Project Competition for Grades 7–12 (2024)

Institute Service

Board Member

- o President, INFORMS Georgia Tech Student Chapter (2023-2024)
- o Secretary, INFORMS Georgia Tech Student Chapter (2022-2023)
- o Communication Coordinator, Graduate Super Women Engineers (GradSWE) University of Toronto (2021-2022)

Ambassador

- o Student Diversity Program, Georgia Institute of Technology (2022-2023)
- o ISyE Bee Well Program (for Health and Wellness of Ph.D. students), Georgia Institute of Technology (2022-2024)

Co-Organizer

o University of Toronto Engineering Research Conference (2021)

Panelist

o Graduate Student Panel for Focus Program Campus Visit, Georgia Institute of Technology (2024)

Judge & Reviewer for Competition/Award

- o ISyE AP Statistics High School Competition (2022)
- o President's Undergraduate Research Awards (2021-Now)

Session Coordinator

o Teaching Professor Conference (2022)

Presentations

Invited

- Talk titled "Tensor-based Predictive Modeling and Process Control," Rising Stars in Computational and Data Sciences Workshop, Austin, USA (2025)
- o Talk titled "Tensor-based Predictive Modeling and Process Control," **Tandon** Faculty First-Look Program, New York, USA (2025)
- Talk titled "Federated Multiple Tensor-on-Tensor Regression for Multimodal Data under Data-Sharing Constraints," INFORMS Annual Conference, Seattle, USA (2024)
- o Talk titled "Federated Multiple Tensor-on-Tensor Regression for Multimodal Data under Data-Sharing Constraints," **NSF Workshop on Urban Resilience**, Georgia, USA (2024)
- Talk titled "Tensor-Based Feedback Control for Local Structured High-Dimensional Streaming Data under Limited Control Capability," INFORMS Annual Conference, Phoenix, USA (2023)
- Talk titled "Tensor-Based Feedback Control for Local Structured High-Dimensional Streaming Data under Limited Control Capability," INFORMS Data Mining and Decision Analytics Workshop, Phoenix, USA (2023)
- Talk titled "Federated Multiple Tensor-on-Tensor Regression for Multimodal Data under Data-Sharing Constraints," INFORMS Data Mining and Decision Analytics Workshop, Phoenix, USA (2023)
- Poster titled "Federated Multiple Tensor-on-Tensor Regression for Multimodal Data under Data-Sharing Constraints," Cornell ORIE Young Researcher Workshop, Ithaca, USA (2023)
- Talk titled "Tensor-Based Temporal Control for Partially Observed High-Dimensional Streaming Data," INFORMS Annual Conference, Indianapolis, USA (2022)
- o Talk titled "Exploration & Appreciation," Women in Engineering: Mentoring Discussion, IEEE WIE Region 3 (2022)

Contributed

- Poster titled "Federated Multiple Tensor-on-Tensor Regression for Multimodal Data under Data-Sharing Constraints," INFORMS Annual Conference, Seattle, USA (2024)
- Talk titled "Tensor-Based Feedback Control for Local Structured High-Dimensional Streaming Data under Limited Control Capability," Joint Statistical Meetings, Portland, USA (2024)
- Poster titled "Tensor-Based Feedback Control for Local Structured High-Dimensional Streaming Data under Limited Control Capability," INFORMS Annual Conference, Phoenix, USA (2023)
- Talk titled "Federated Multiple Tensor-on-Tensor Regression for Multimodal Data under Data-Sharing Constraints," IISE Annual Conference, Louisiana, USA (2023)
- Poster titled "Federated Multiple Tensor-on-Tensor Regression for Multimodal Data under Data-Sharing Constraints," IISE Annual Conference, Louisiana, USA (2023)
- o Talk titled "Federated Multiple Tensor-on-Tensor Regression for Multimodal Data under Data-Sharing Constraints," **ISyE Ph.D. Student Seminar**, Georgia, USA (2023)
- Poster titled "Tensor-Based Temporal Control for Partially Observed High-Dimensional Streaming Data," INFORMS Annual Conference, Indianapolis, USA (2022)
- Talk titled "Tensor-Based Temporal Control for Partially Observed High-Dimensional Streaming Data," ISyE Ph.D. Student Seminar, Georgia, USA (2022)
- o Talk titled "A Pattern-Driven Stochastic Degradation Model for the Prediction of Remaining Useful Life of Rechargeable Batteries," **University of Toronto Engineering Research Conference**, Toronto, Canada (2021)
- o Talk titled "A Pattern-Driven Stochastic Degradation Model for the Prediction of Remaining Useful Life of Rechargeable Batteries," **AMIGAS Student Seminar**, Toronto, Canada (2021)
- Talk titled "A Pattern-Driven Stochastic Degradation Model for the Prediction of Remaining Useful Life of Rechargeable Batteries," IMA International Conference on Modelling in Industrial Maintenance and Reliability, virtual (2021)
- Talk titled "Postponed Maintenance Scheduling Integrating State Variation and Environmental Impact," University of Toronto Graduate Speaker Series, Toronto, Canada (2020)
- o Talk titled "Remaining Useful Life Prediction Based on Kalman Filter Updated Samples," Asia Pacific Conference of the Prognostics and Health Management Society, Beijing, China (2019)

Professional Memberships

- o American Society for Quality (ASQ)
- o American Statistical Association (ASA)
- o American Society of Mechanical Engineers (ASME)
- o Decision Sciences Institute (DSI)
- o Institute of Electrical and Electronics Engineers (IEEE)
- o Institute of Industrial and Systems Engineers (IISE)
- o Institute for Operations Research and the Management Sciences (INFORMS)
- o International Society of Automation (ISA)
- o Professional Engineers Ontario (PEO)
- o Society for Industrial and Applied Mathematics (SIAM)
- o Society of Manufacturing Engineers (SME)

References

o Dr. Jianjun (Jan) Shi (co-advisor)

Carolyn J. Stewart Chair and Professor H. Milton Stewart School of Industrial and Systems Engineering Georgia Institute of Technology

Atlanta, GA, USA

jianjun.shi@isye.gatech.edu

o Dr. Kamran Paynabar (co-advisor)

Fouts Family Chair and Professor

H. Milton Stewart School of Industrial and Systems Engineering Georgia Institute of Technology

Atlanta, GA, USA

kamran.paynabar@isye.gatech.edu