Fenglian Pan

Systems & Industrial Engineering Department, University of Arizona

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EDUCATION

University of Arizona — Tucson, Arizona, USA
Ph.D. Candidate in Systems & Industrial Engineering — Aug. 2019–Current

- Dissertation: "Spatial-Temporal Event Data Analytics"

- Committee: Dr.Jian Liu (Chair), Dr.Larry Head, Dr.Helen Zhang, Dr.Jianqiang Cheng

University of Arizona — Tucson, Arizona, USA
M.S. in Statistics & Data Science — Aug. 2021–Dec. 2023

- Track: Statistical Informatics

Beihang University — Bejing, China
M.S. in Industrial Engineering — Sept. 2016–Feb. 2019

Nanjing University of Aeronautics and Astronautics — Nanjing, China
B.S. in Information and computational Science — Sept. 2012–June 2016

RESEARCH INTERESTS

Methodologies

Spatial-Temporal Event Data Analytics, High-Dimensional Data Analytics, Stochastic Point Process, Statistical Learning, Bayesian Inference, Survival analysis, Machine Learning, Physics-based Simulation

Applications

Healthcare Informatics, Autonomous Vehicle Systems, Transportation Systems, Social Media Networks, Supply Chain Networks, Additive Manufacturing

PUBLICATIONS

1. **Pan, F.**, Zhang, Y., Head, L., Liu, J., Elli, M., and Alvarez, I. (2022). "Quantifying Error Propagation in Multi-Stage Perception System of Autonomous Vehicles via Physics-Based Simulation." *In 2022 Winter Simulation Conference (WSC) (pp. 2511-2522). IEEE.*

2. **Pan, F.**, Yan, X., Wang, N. and Xiao, B. (2018). "A Prediction Model of Repairable Spare Parts Utilization Rate Based on Probabilistic Method." *In 2018 3rd International Conference on System Reliability and Safety (ICSRS) (pp. 187-191). IEEE.*

3. **Pan, F.**, and Xiao, B. (2018). "A Parametric Evaluation Approach Based on SFA for System Reliability Redundancy Allocation Plan." *In 2018 Annual Reliability and Maintainability Symposium (RAMS) (pp. 1-5). IEEE.*

MANUSCRIPTS UNDER REVIEW

1. **Pan, F.**, Zhang, Y., Head, L., Liu, J., Elli, M., and Alvarez, I. (2023). "Reliability Modeling for Perception Systems in Autonomous Vehicles: A Recursive Event-Triggering Point Process." *Journal of Transportation Research Part C (2023 INFORMS Conference on Quality, Statistics, and Reliability Best Paper Award to Finalist.)*

2. **Pan, F.**, Zhou, Y., Kong, N., and Liu, J. (2023). "Modeling Opioid Overdose Recurrence with a Covariate-Adjusted Mutually-Triggering Point Process (CAMTPP)." *Journal of Biomedical Health Informatics.*

3. Yang, H., **Pan, F. (Co-first author)**, and Liu, J. (2023). "Measurement Error Tolerant Poisson Regression for Valley Fever Incidence Prediction." *IISE Transactions on Healthcare Systems Engineering.*

4. **Pan, F.**, and Liu, J. (2024). "Ten Years of Dedicated Advancements in K-12 Education." *The Spring/Summer OR/MS Tomorrow Issue.*

WORKING PAPERS

1. **Pan, F.**, and Liu, J. (2024). "Spatial-Temporal Triggering Pattern Recovery Using Large-Scale Recurrent Event Data." *In Preparation.*

IN-PERSON PRESENTATIONS (PRESENTER UNDERLINED)

1. <u>**Pan, F.**</u>, Zhou, Y., Kong, N., and Liu, J. (2024). "Modeling Opioid Overdose Recurrence with a Covariate-Adjusted Mutually-Triggering Point Process (CAMTPP)." *The Arizona Data Science Day, University of Arizona.*

2. <u>**Pan, F.**</u>, Zhang, Y., Head, L., Liu, J., Elli, M., and Alvarez, I. (2023). "Reliability Modeling for Perception Systems in Autonomous Vehicles: A Recursive Event-Triggering Point Process." *GradSlamXSIE Poster Competition, University of Arizona.*

3. <u>**Pan, F.**</u>, Zhang, Y., Head, L., Liu, J., Elli, M., and Alvarez, I. (2023). "Reliability Modeling for Perception Systems in Autonomous Vehicles: A Recursive Event-Triggering Point Process." *INFORMS Conference on Quality, Statistics, and Reliability (ICQSR), Raleigh, NC.*

4. <u>**Pan, F.**</u>, and Liu, J. (2023). "Spatial-Temporal Triggering Pattern Recovery Using Large-Scale Recurrent Event Data." *INFORMS Annual Meeting, Phoenix, AZ.*

5. <u>**Pan, F.**</u>, and Liu, J. (2022). "Spatial-Temporal Event Prediction Considering Latent Triggering Pattern." *INFORMS Annual Meeting, Indianapolis, IN.*

6. **Pan, F.**, <u>Kong, N.</u>, Pan, F., Liu, J., and Zhou, Y. (2022). "Deciphering Inpatient Procedure Heterogeneity with Multivariate Point Process Modeling." *INFORMS Annual Meeting, Indianapolis, IN.*

7. **Pan, F.**, Zhang, Y., Head, L., <u>Liu, J.</u>, Elli, M., and Alvarez, I. (2022). "Quantifying Error Propagation in Multi-Stage Perception System of Autonomous Vehicles via Physics-Based Simulation." *Winter Simulation Conference (WSC), Singapore.*

8. <u>**Pan, F.**</u>, and Liu, J. (2021). "Spatial-Temporal Trip Demand Prediction Considering Trip Chaining Effect." *INFORMS Annual Meeting, Anaheim, CA.*

9. <u>**Pan, F.**</u>, and Xiao, B. (2018). "A Parametric Evaluation Approach Based on SFA for System Reliability Redundancy Allocation Plan." *Annual Reliability and Maintainability Symposium (RAMS), Reno, NV.*

PROPOSAL WRITING EXPERIENCE

Title: INFORMS K-12 Education Outreach and Networking Program

Program Members: Dr.Neil Desnoyers (Saint Joseph's University), Fenglian Pan (University of Arizona), Zihan Zhang (Georgia Tech)

Source: INFORMS DEI Ambassador Program

Status: Funded, **Amount:** $4,968, **Grant Period:** 2024-2025

Overview: The unprecedented educational disruption caused by the COVID-19 pandemic leaded to a critical shortage of educators, with many teachers retiring or leaving the profession and a noticeable gap in new educators joining the ranks. This shortage made the presence of dedicated teachers is more crucial than ever

for our students' academic and emotional well-being. This proposed Ambassador Program is a proactive response to these multifaceted challenges. Our goal is to reinvigorate K-12 education by establishing a dynamic network that connects high school students with higher education and career pathways, particularly in STEM fields.

Teaching Related Experience

Instructor at College of Engineering University of Arizona
Summer Engineering Academy (SEA) Outreach Program (K-12 student)

- 2023 Summer (in-person)
- 2022 Summer (virtual)
- 2021 Summer (virtual)

Module Instructor at Systems & Industrial Engineering Department University of Arizona
SIE 530: Engineering Statistics

- 2023 Fall (in-person)
- 2021 Fall (hybrid)
- 2020 Fall (virtual)

Teaching Assistant at Systems & Industrial Engineering Department University of Arizona
SIE 508: Reliability Engineering, 2021 Spring

Teaching Assistant at Systems & Industrial Engineering Department University of Arizona
SIE 330: Engineering Experiment Design, 2021 Spring

Teaching Assistant at Systems & Industrial Engineering Department University of Arizona
SIE 506: Quality Engineering, 2020 Spring

Teaching Assistant at Systems & Industrial Engineering Department University of Arizona
SIE 305: Engineering Probability and Statistics, 2019 Fall

Participant of Certificate in College Teaching Graduate Program University of Arizona
IA 699d: Inclusive STEM Teaching Independent Study, 2023 Fall

Teaching Interests

Data Science, Statistical Machine Learning, Python Tutorial, Engineering Statistics, Supply Chain, Engineering Probability and Statistic, Reliability Engineering

Leadership, Outreach, & Community Service

- **Moderator**
- INFORMS Virtual K-12 Outreach Panel Session, INFORMS 2024 DEI Ambassador Program
- **Panelist**
- Applying to Grad School Workshop 2023, College of Engineering, University of Arizona
- **Conference Session Chair**
- High-Dimensional Data Analytics for Manufacturing Session, INFORMS Annual Meeting 2023

- Advancements in Spatial-temporal Analytics Session I, INFORMS Annual Meeting 2023
- Advancements in Spatial-Temporal Analytics Session I, INFORMS Annual Meeting 2022
- Advancements in Spatial-Temporal Analytics Session II, INFORMS Annual Meeting 2022
- **Conference Session Co-Chair**
- Advancements in Spatial-Temporal Analytics Session I, INFORMS Annual Meeting 2021
- Advancements in Spatial-Temporal Analytics Session II, INFORMS Annual Meeting 2021
- **Student Leader**
- SEA 2023 Outreach Program, University of Arizona
- SEA 2022 Outreach Program, University of Arizona
- SEA 2021 Outreach Program, University of Arizona
- **Volunteer**
- INFORMS Conference on Quality, Statistics, and Reliability (ICQSR) 2023
- INFORMS Annual Meeting 2022
- **Reviewer**
- International Congress of Measurement, Quality and Data Sciences (MQDS)

Professional Membershps

• INFORMS K-12 Education Outreach and Networking Program, Member	2024–Current
• INFORMS Education Outreach Committee K-12, Member	2023–Current
• Institute of Industrial and Systems Engineers (IISE), Member	2023–Current
• Institute for Operations Research and the Management Sciences (INFORMS), Member	2021–Current

Awards & Honors

• **Outstanding Graduate Teaching Assistant**, University of Arizona	2024
• **INFORMS DEI Ambassador**	2024
• **IISE Future Faculty Fellow**	2023
• **Best Paper Award to Finalist**, INFORMS Conference on Quality, Statistics, and Reliability	2023
• **The 1st Place Award**, GradSlamXSIE Poster Competition, University of Arizona	2023
• **Alumni Scholarship**, Beihang University	2017–2018
• **Dean's List Scholarship**, Beihang University	2012–2016
• **National Scholarship (1%)**, Nanjing University of Aeronautics and Astronautics	2015
• **National Encouragement Scholarship (2%)**, Nanjing University of Aeronautics and Astronautics	2013–2014

Graduate Related Courseworks

Statistical Machine Learning, Foundation of Data Science for Engineering, Theory of Probability, Theory of Statistics, Design of Experiment, Advanced Statistical Regression Analysis, Statistical Consulting, Topic of Optimization, Fundamental Optimization, Stochastic Process

Language

Chinese (native), English (fluent)