Panyi Dong

Education

- 2022–Present **Ph.D. student, Actuarial and Risk Management Sciences**, *University of Illinois Urbana-Champaign*, Champaign, USA, Advisor: Professor Zhiyu Quan, PhD.
 - 2020–2022 M.S., Actuarial Science and Risk Management, University of Illinois Urbana-Champaign, Champaign, USA.
 - 2016–2020 B.S., Physics, Zhejiang University, Hangzhou, China.

Research Interest

Actuarial Science, Machine Learning (ML), Algorithmic Bias and Fairness, Interpretable AI, Privacy-preserving ML, Federated Learning (FL), Automated Machine Learning (AutoML)

Professional Experience

- 2022-Present Graduate Supervisor, University of Illinois Urbana-Champaign, Illinois Risk Lab, USA.
- 2022–Present **Graduate Research/Teaching Assistant**, *University of Illinois Urbana-Champaign*, Department of Actuarial and Risk Management Sciences, USA.
 - 2021 Intern, AIA Life Insurance Company Limited, Reporting Team, Shanghai, China.

Publications

Refereed Journal Articles

- 2025 **Panyi Dong**, Zhiyu Quan. (2025). Automated Machine Learning (AutoML) in Insurance. *Insurance: Mathematics and Economics*, 120, 17-41. https://www.sciencedirect.com/science/article/pii/S0167668724001057
- Zhiyu Quan, Changyue Hu, **Panyi Dong**, Emiliano A. Valdez. (2025). Improving Business Insurance Loss Models by Leveraging InsurTech Innovation. *North American Actuarial Journal*, 29(2), 247-274, https://www.tandfonline.com/doi/full/10.1080/10920277.2024. 2400648?af=R

Working Manuscripts

- Panyi Dong, Zhiyu Quan. InsurTech innovation using natural language processing. *Under review*. https://arxiv.org/abs/2507.21112
- 2025 **Panyi Dong**, Zhiyu Quan, Runhuan Feng, Tianyang Wang. Bridging the Divide While Walking a Tightrope: Evidence from the Insurance Industry on Data Privacy and Utility. *In preparation*. https://arxiv.org/abs/2402.14983
- 2025 **Panyi Dong**, Zhiyu Quan. Hybrid Tree-based Interpretable Pricing. *In preparation*.

Professional Publications

2024 **Panyi Dong**, Runhuan Feng, Zhiyu Quan, Tianyang Wang. Federated Learning for Insurance Companies. *Society of Actuaries Research Institute*, https://www.soa.org/resources/research-reports/2024/federated-learning-insurance-companies/

Awards & Honors

- 2025 **SOA James C. Hickman Scholar Doctoral Stipend**, *Society of Actuaries*.
- 2024 & 2025 PARM Summer Research Fellows, University of Illinois Urbana-Champaign.
 - 2020 Certificate of Chu Kochen Honor Program, Zhejiang University.
 - 2016-2020 Second-Class Scholarship for Elite Students in Basic Science, Zhejiang University.

Presentations

- 2025 **Hybrid Tree-based Interpretable Pricing**, 60th Actuarial Research Conference (ARC), York University, Toronto, Canada, Jul. 29-Aug. 1, 2025.
- 2024 **Automated Machine Learning (AutoML) in Insurance**, 27th International Congress on Insurance: Mathematics and Economics (IME), DePaul University, Chicago, USA, Jul. 8-11, 2024.
- 2023 **Privacy-Preserving Collaborative Information Sharing Through Federated Learning**, *58th Actuarial Research Conference (ARC)*, *Drake University*, Des Moines, USA, Jul. 30-Aug. 2, 2023.

Privacy-Preserving Collaborative Information Sharing Through Federated Learning, National Center for Supercomputing Applications (NCSA) Student Conference, University of Illinois Urbana-Champaign, Champaign, USA, Apr. 13, 2023.

Privacy-Preserving Collaborative Information Sharing Through Federated Learning, *Probabilistic Safety Assessment and Management (PSAM) Topical Conference 2023, University of Illinois Urbana-Champaign*, Abstract accepted.

Automated Machine Learning (AutoML) in Insurance, 57th Actuarial Research Conference (ARC), University of Illinois Urbana-Champaign, Champaign, USA, Aug. 3-6, 2022.

Academic Services

Peer Review

- 2025 Technological Forecasting and Social Change (IF: 12.9)
- 2024 IEEE Transactions on Big Data (IF: 7.5)

Research Experience

2024-Present Zero Reduction for Imbalanced Datasets

2024-Present Hybrid Tree Insurance Pricing

Graduate Supervisor, Illinois Risk Lab

- 2022 Insurance Privacy Preservation in Federated Learning Collaboration
- Fall 2022 Algorithm Bias and Explainable Artificial Intelligence (XAI)

Graduate Researcher, Illinois Risk Lab

- Fall 2025 Model Governance and Ethics for GenAl Models
 - 2022 Enhance Insurance Models through Insurtech Innovations
- Fall 2021 Automated Machine Learning in Insurance

Teaching Experience

Teaching Assistant, University of Illinois Urbana-Champaign

Spring 2025 **ASRM 471 Life Contingencies I (SOA UEC FAM-L)**, Course Development, Discussion Session, Office Hour.

ASRM 539 Risk Analytics and Decision Making, Office Hour.

- Fall 2024 ASRM 471 Life Contingencies I (SOA UEC FAM-L), Course Development, Discussion Session, Grading, Office Hour.
- Spring 2024 ASRM 471 Life Contingencies I, Course Development, Discussion Session, Grading, Office Hour.
 - ASRM 555 Advanced Predictive Analytics, Course Development, Office Hour.
 - Fall 2023 ASRM 471 Life Contingencies I (SOA UEC FAM-L), Course Development, Discussion Session, Grading, Office Hour.
 - ASRM 454 Generalized Linear Models, Grading.
 - **ASRM 499 Deep Learning for Finance & Insurance**, *Grading*.
 - Fall 2022 ASRM 471 Life Contingencies I (SOA UEC FAM-L), Course Development, Discussion Session, Grading, Office Hour.
 - MATH 563 Risk Modeling and Analysis, Course Development, Grading.

Professional Exams

SOA (Society of Actuaries): Exam P, FM, IFM, LTAM, STAM, SRM (expected May 2025), VEE Mathematics Statistics. Towards ASA.