

# Changyue Hu

## Biography

Changyue Hu is a Ph.D. candidate majoring in Actuarial Science at the University of Illinois at Urbana-Champaign, advised by Prof. Zhiyu Quan. Prior to joining the doctoral program, she obtained her Master's degree in Actuarial Science at the University of Illinois and her Bachelor's degree in Mathematics at Nankai University. Her research interests lie in machine learning applications in actuarial science. She has been a graduate supervisor of several InsurTech-related research projects in IRisk Lab since Spring 2021. She has also received the SOA James C. Hickman Scholar Doctoral Stipend, the State Farm Actuarial Science Scholarship, the Esther Portnoy Actuarial Science Scholarship, and the Student Presentation Awards at the Actuarial Research Conferences.

## Education

- Expected 2026 **Ph.D., Mathematics with a Concentration in Actuarial Science and Risk Analytics**, University of Illinois Urbana-Champaign, USA, Advisor: Professor Zhiyu Quan, PhD.
- 2021 **M.S., Actuarial Science**, University of Illinois Urbana-Champaign, USA.
- 2020 **B.S., Mathematics and Applied Mathematics**, Nankai University, China.

## Research Interest

Actuarial Science, Machine Learning, Data Science, InsurTech, Tree-Based Models, Text Mining and Natural Language Processing

## Publications & Manuscripts

### Refereed Journal Articles

- 2024 Zhiyu Quan, **Changyue Hu**, Panyi Dong, Emiliano A. Valdez. Improving business insurance loss models by leveraging InsurTech innovation. *North American Actuarial Journal*. <https://doi.org/10.1080/10920277.2024.2400648>
- 2024 Linfeng Zhang, **Changyue Hu**, Zhiyu Quan. NLP-Powered Repository and Search Engine for Academic Papers: A Case Study on Cyber Risk Literature with CyLit. *North American Actuarial Journal*. <https://doi.org/10.1080/10920277.2024.2416903>
- 2022 **Changyue Hu**, Zhiyu Quan, Wing Fung Chong. Imbalanced learning for insurance using modified loss functions in tree-based models. *Insurance: Mathematics and Economics*. <https://doi.org/10.1016/j.insmatheco.2022.04.010>

### Working Paper

- 2025 **Changyue Hu**, Zhiyu Quan. NLP-Powered Industry Classification based on Business Information.

## Professional Exams

SOA: Passed Exams P, FM, FAM, SRM, ALTAM. Progressing toward ASA.

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## Presentations

- 2025 **NLP-Powered Industry Classification Based on Business Information**, *the 60th Actuarial Research Conference*, York University, Toronto, Ontario, Canada, 29 July - 1 August 2025.
- 2024 **NLP-Powered Repository and Search Engine for Academic Papers: A Case Study on Cyber Risk Literature with CyLit**, *the 27th International Congress on Insurance: Mathematics and Economics*, DePaul University, Chicago, Illinois, USA, 8-11 July 2024.
- 2023 **NLP-Powered Repository and Search Engine for Academic Papers: A Case Study on Cyber Risk Literature with CyLit**, *the 58th Actuarial Research Conference*, Drake University, Des Moines, USA, 30 July - 2 August 2023.
- Improving Business Insurance Loss Models by Leveraging InsurTech Innovation**, *National Center for Supercomputing Applications Student Conference*, University of Illinois Urbana-Champaign, Champaign, USA, 13 April 2023.
- 2022 **Improving Business Insurance Loss Models by Leveraging InsurTech Innovation**, *the 57th Actuarial Research Conference*, University of Illinois Urbana-Champaign, Champaign, USA, 3-6 August 2023.
- Improving Business Insurance Loss Models by Leveraging InsurTech Innovation**, *the Risk Analytics Symposium 2022*, University of Illinois Urbana-Champaign, Champaign, USA, 25 March 2022.
- 2021 **Imbalanced Learning using Actuarial Modified Loss Functions in Tree-based Models**, *the 2nd Waterloo Student Conference in Statistics, Actuarial Science and Finance*, University of Waterloo, Waterloo, Canada, 5-6 November 2021.  
Online
- Imbalanced Learning using Actuarial Modified Loss Functions in Tree-based Models**, *the 56th Actuarial Research Conference*, DePaul University, Chicago, USA, 19-21 August 2021.  
Online
- Imbalanced Learning using Actuarial Modified Loss Functions in Tree-based Models**, *United As One: 24th International Congress on Insurance: Mathematics and Economics*, University of Illinois Urbana-Champaign and Pennsylvania State University in United States, Ulm University in Germany, and the University of New South Wales (UNSW Sydney) in Australia, 5-9 July 2021.  
Online

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## Teaching Experience

Teaching Assistant, University of Illinois Urbana-Champaign

- Fall 2025 ASRM 461 Loss Models (SOA UEC FAM-S): *DT, OH*
- Spring 2025 ASRM 461 Loss Models (SOA UEC FAM-S): *DT, OH*
- Fall 2024 ASRM 461 Loss Models (SOA UEC FAM-S): *CD, DT, GD, OH*
- Spring 2024 ASRM 441 Statistics for Risk Modeling I (SOA UEC SRM-I): *DT, OH*  
ASRM 469 Casualty Actuarial Mathematics: *GD, OH*
- Fall 2023 ASRM 461 Loss Models (SOA UEC FAM-S): *CD, DT, GD, OH*  
ASRM 462/561 Advanced Loss Models (SOA UEC ASTAM): *CD, DT, GD, OH*

MATH 563 Risk Modeling: *CD, GD*

Fall 2022 ASRM 195 Foundations of Data Management: *DT, GD, OH*  
 ASRM 461 Loss Models (SOA UEC FAM-S): *CD, DT, GD, OH*  
 ASRM 561 Advanced Loss Models (SOA UEC ASTAM): *CD, DT, GD, OH*

Spring 2022 ASRM 210 Theory of Interest: *DT, OH*  
 ASRM 499 Statistics for Risk Modeling: *GD, OH*

Fall 2021 ASRM 510 Financial Mathematics: *GD, OH*  
 MATH 225 Introductory Matrix Theory: *GD, OH*  
 MATH 461 Probability: *GD, OH*

Spring 2021 ASRM 455 Predictive Analytics: *CD, OH*  
 ASRM 461 Loss Models: *CD, DT*

*CD: Course Development; DT: Discussion Teaching; GD: Grading; OH: Office Hour*

## Fellowships, Grants & Awards

2024 - 2026 **James C. Hickman Scholar Doctoral Stipend**, *Society of Actuaries*.

2021, 2022 & 2025 **Actuarial Research Conference Presentation Prize - Honorable Mention**, *Society of Actuaries*.

2025 **Committee on Knowledge Extension Research Actuarial Research Conference Travel Grant**, *Society of Actuaries*.

2025 **SOA Research Institute / University Partnerships for Artificial Intelligence Topics Grant (Co-PI)**, *Society of Actuaries*.

2024 & 2025 **PARM Summer Research Fellowship**, *University of Illinois Urbana-Champaign*.

2023 & 2025 **Teachers Ranked as Excellent by Their Students**, *University of Illinois Urbana-Champaign*.

2023 **Esther Portnoy Actuarial Science Scholarship**, *University of Illinois Urbana-Champaign*.

2022 **Illinois Risk Lab Award**, *University of Illinois Urbana-Champaign*.

2022 **State Farm Actuarial Science Scholarship**, *University of Illinois Urbana-Champaign*.

2018 **Community Service Scholarship**, *Nankai University*.

2017 **Nankai University Merit Scholarship (Gong-Neng Scholarship)**, *Nankai University*.

## Professional Service

Referee North American Actuarial Journal, Risk Sciences

Volunteer 24th and 27th International Congress on Insurance: Mathematics and Economics, 57th Actuarial Research Conference

Graduate Illinois Risk Lab, University of Illinois

Supervisor