Changyue Hu

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Actuarial Science

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Biography

Changyue Hu is a Ph.D. student 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 State Farm Actuarial Science Scholarship, the Esther Portnoy Actuarial Science Scholarship, and the Honorable Mentions of Student Presentation Reward at the Actuarial Research Conferences in both 2021 and 2022.

Education

2021–2026   **Ph.D., Mathematics with a Concentration in Actuarial Science and Risk Analytics**, *University of Illinois Urbana-Champaign*, USA, Advisor: Professor Zhiyu Quan, PhD.

2019–2021   **M.S., Actuarial Science**, *University of Illinois Urbana-Champaign*, USA.

2016–2020   **B.S., Mathematics and Applied Mathematics**, *Nankai University*, China.

Research Interest

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

Scholarships & Awards

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

2022   **2022 ARC Presentation Prize - Honorable Mention**, *Society of Actuaries*.

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

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

2021   **2021 ARC Presentation Prize - Honorable Mention**, *Society of Actuaries*.

Publications

Working and Submitted Papers

2023   Linfeng Zhang, **Changyue Hu**, Zhiyu Quan. NLP-Powered Repository and Search Engine for Academic Papers: A Case Study on Cyber Risk Literature with CyLit. *In preparation*

2022   Zhiyu Quan, **Changyue Hu**, Panyi Dong, Emiliano A. Valdez. Improving business insurance loss models by leveraging InsurTech innovation. *Submitted for publication*

Refereed Journal Articles

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`

Presentations

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 58th 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.
On-line

Imbalanced Learning using Actuarial Modified Loss Functions in Tree-based Models, *the 56th Actuarial Research Conference*, DePaul University, Chicago, USA, 19-21 August 2021.
On-line

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.
On-line

Teaching Experience

Teaching Assistant, University of Illinois Urbana-Champaign

Fall 2023 ASRM 461 Loss Models

ASRM 462/561 Advanced Loss Models

MATH 563 Risk Modeling

Fall 2022 ASRM 195 Foundations of Data Management

ASRM 461 Loss Models (**Teachers Ranked as Excellent by Their Students**)

ASRM 561 Advanced Loss Models

Spring 2022 ASRM 210 Theory of Interest

ASRM 499 Statistics for Risk Modeling

Fall 2021 ASRM 510 Financial Mathematics

MATH 225 Introductory Matrix Theory

MATH 461 Probability

Research Experience

Graduate Supervisor, Illinois Risk Lab

2022 Spatiotemporal Modeling on Foot Traffic Data to Unlock Auto Insurance Geo-risks

2021-2022 COUNTRY Financial Business Owner's Policy (BOP) Loss Predictive Model

2021 Pekin Insurance General Liability Insurance (GL) Loss Predictive Modeling

Student Researcher, Illinois Risk Lab

2020   AI-Powered Lifecycle Financial Planning

2020   Measuring Intra-day Systemic Risk in High-frequency Order Books

Thesis Research

2020-2021   Imbalanced Learning using Actuarial Modified Loss Functions in Tree-based Models