Lu Yang

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Education

Ph.D. - Statistics
University of Wisconsin-Madison, Madison, WI, USA — September 2012 - August 2017
Advisors: Professor Edward W. Frees and Professor Zhengjun Zhang
Thesis Topic: Copula Regression with Discrete Outcomes

B.S. - Mathematics and Applied Mathematics
Zhejiang University, Hangzhou, China — September 2008 - June 2012

Academic Positions

Assistant Professor - Statistics — October 2020 - Present
School of Statistics, University of Minnesota, Minneapolis, USA

Assistant Professor - Actuarial Science and Mathematical Finance — August 2017 - October 2020
Amsterdam School of Economics, University of Amsterdam, Amsterdam, The Netherlands

Research Interests

Multivariate analysis

Regression model diagnostics

Nonparametric methods

Insurance analytics

Publications and Preprints

1. **Yang, L.** (2023) Diagnostics for Regression Models with Semicontinuous Outcomes, *Biometrics*, revised and resubmitted.

2. **Yang, L.**, Shi, P., Huang, S. (2023) A Copula Model for Marked Point Process with A Terminal Event: An Application in Dynamic Prediction of Insurance Claims, *Annals of Applied Statistics*, revised and resubmitted.

3. **Yang, L.** (2023) Double Probability Integral Transform Residuals for Regression Models with Discrete Outcomes, *Journal of Computational and Graphical Statistics*, accepted. arXiv https://arxiv.org/abs/1901.04376.

4. **Yang, L.**, Czado, C. (2022) Two-Part D-Vine Copula Models for Longitudinal Insurance Claim Data, *Scandinavian Journal of Statistics*, Vol. 49, No. 4, pp. 1534-1561.

5. **Yang, L.** (2022) Nonparametric Copula Estimation for Mixed Insurance Claim Data, *Journal of Business & Economic Statistics*, Vol. 40, No. 2, pp. 537-546.

6. **Yang, L.** (2021) Assessment of Regression Models with Discrete Outcomes Using Quasi-Empirical Residual Distribution Functions, *Journal of Computational and Graphical Statistics*, Vol. 30, No. 4, pp. 1019-1035.

7. **Yang, L.**, Frees, E.W., Zhang, Z. (2020) Nonparametric Estimation of Copula Regression Models with Discrete Outcomes, *Journal of the American Statistical Association*, Vol. 115, No. 530, pp. 707–720.

8. **Yang, L.**, Shi, P. (2019) Multiperil Rate Making for Property Insurance Using Longitudinal Data, *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, Vol. 182, No. 2, pp. 647-668.

9. Shi, P., **Yang, L.** (2018) Pair Copula Constructions for Insurance Experience Rating, *Journal of the American Statistical Association*,Vol. 113, No. 521, pp. 122-133.

10. Frees, E.W., Lee, G., **Yang, L.** (2016) Multivariate Frequency-Severity Regression Models in Insurance, *Risks*, Vol. 4, p. 4.

Working Papers

1. Genest, C., Nešlehová, J., **Yang, L.** (2023) A Goodness-of-Fit Test for Regression Models with Discrete Outcomes, in preparation.

Professional Activities

Invited Presentations

Dynamic Prediction of Outstanding Insurance Claims Using Joint Models for Longitudinal and Survival Outcomes
Lecture of Statistics, School of Statistics, Renmin University, China December 2023

New Residuals for Regression Models with Discrete Outcomes Based on Double Probability Integral Transform
Invited session, Joint Statistical Meetings, Toronto, Canada August 2023

Dynamic Prediction of Outstanding Insurance Claims Using Joint Models for Longitudinal and Survival Outcomes
Young Scholars Forum on Mathematics, Zhejiang University, China June 2023

New Residuals for Regression Models with Noncontinuous Outcomes
Colloquium, Department of Statistics and Probability, Michigan State University, USA April 2023

Dynamic Prediction of Outstanding Insurance Claims Using Joint Models for Longitudinal and Survival Outcomes
Actuarial Science Seminar, Department of Mathematics, University of Connecticut, USA
November 2022

Dynamic Prediction of Outstanding Insurance Claims Using Joint Models for Longitudinal and Survival Outcomes
Extreme Value Theory and Quantitative Risk Management (EVT & QRM) Workshop, Shanghai Center of Mathematical Sciences and Fudan University School of Data Science, virtual
August 2022

Dynamic Prediction of Outstanding Insurance Claims Using Joint Models for Longitudinal and Survival Outcomes
MCFAM Seminar, School of Mathematics, University of Minnesota, USA April 2022

Dynamic Prediction of Outstanding Insurance Claims Using Joint Models for Longitudinal and Survival Outcomes
Seminar, Department of Risk Management & Insurance, Georgia State University, USA March 2022

Dependence Modeling of Mixed Insurance Claim Data
Seminar, Department of Mathematics and Statistics, McGill University, Canada April 2021

Diagnostics for Regression Models with Discrete Outcomes
Seminar, School of Statistics, University of Minnesota, USA February 2020

Dependence Modeling of Mixed Insurance Claim Data
Seminar, Department of Statistics, The Ohio State University, USA February 2020

Two-Part D-Vine Copula Models for Longitudinal Insurance Claim Data
Seminar, Department of Mathematics, University of Illinois, USA January 2020

Diagnostics for Regression Models with Discrete Outcomes
Seminar, Department of Statistics and Actuarial Science, University of Waterloo, Canada January 2020

Diagnostics for Regression Models with Discrete Outcomes
Seminar, Department of Statistics, Purdue University, USA January 2020

Diagnostics for Regression Models with Discrete Outcomes
Seminar, Department of Statistics, University of Illinois, USA January 2020

Nonparametric Copula Estimation for Mixed Insurance Claim Data
CFE-CMStatistics 2019, London, UK December 2019

Diagnostics for Regression Models with Discrete Outcomes
Seminar, Department of Statistics, University of British Columbia, Canada December 2019

Vine Copulas for Discrete and Mixed Data
Invited lecture, FWO (Research Foundation - Flanders) Research Network on Asymptotic Theory of Multivariate Statistics, Hasselt University, Belgium November 2019

Multi-Peril Ratemaking for Property Insurance Using Longitudinal Data
Joint Statistical Meetings, Denver, CO, USA July 2019

Two-Part D-Vine Copula Models for Longitudinal Insurance Claim Data
Workshop on Vine Copulas and their Applications, Munich, Germany July 2019

Diagnostics for Regression Models with Discrete Outcomes
Seminar, Department of Statistics, The Ohio State University, USA April 2019

Two-Part D-Vine Copula Models for Longitudinal Insurance Claim Data
Seminar, Department of Risk and Insurance, University of Wisconsin-Madison, USA March 2019

Multivariate Discrete Outcomes: from Marginal Model Diagnostics to Nonparametric Copula Estimation
Seminar, Department of Statistical Sciences, University of Toronto, Canada February 2019

Multivariate Discrete Outcomes: from Marginal Model Diagnostics to Nonparametric Copula Estimation
Seminar, Department of Statistics and Actuarial Science, University of Waterloo, Canada January 2019

Two-Part D-Vine Copula Models for Insurance Claim Data
CFE-CMStatistics 2018, Pisa, Italy December 2018

Nonparametric Estimation of Copula Regression Models with Discrete Outcomes
Statistics in Insurance Workshop, Madison, WI, USA October 2018

Copula Regression with Discrete Outcomes
Seminar on Statistics and Risk Management, Chair of Mathematical Statistics, Technical University of Munich, Germany May 2018

Multivariate Frequency-Severity Regression Models in Insurance
CFE-CMStatistics 2017, London, UK December 2017

A "New" Method to Model Data with Outliers
Internship final presentation, The Travelers Companies, St Paul, MN, USA August 2015

Contributed Presentations

Diagnostics for Regression Models with Mixed Insurance Claim Data
The 54th Actuarial Research Conference, Indianapolis, IN, USA August 2019

Diagnostics for Regression Models with Mixed Insurance Claim Data
The 23rd International Congress on Insurance: Mathematics and Economics, Munich, Germany July 2019

Multi-Peril Ratemaking for Property Insurance Using Longitudinal Data
The 4th European Actuarial Journal Conference, Leuven, Belgium September 2018

Nonparametric Estimation of Copulas with Discrete Outcomes
The 10th Conference in Actuarial Science & Finance on Samos, Samos, Greece June 2018

Copula Regression with Discrete Outcomes
The 51st Actuarial Research Conference, Minneapolis, MN, USA July 2016

Grants

National Science Foundation DMS-2210712, sole PI 07/01/2022 - 06/30/2025

Assessment of Regression Models with Noncontinuous Outcomes

Total cost: $203,498

AMS-Simons Travel Grant 2021 - 2023

Providing selected early-career mathematicians with $2,500 per year for two years to be used for research-related travel

Honors

Tenure-Track Single Semester Leave, College of Liberal Arts, University of Minnesota 2023

Simons CRM Scholar 2018
Selected by the scholar-in-residence program of the Centre de recherches mathématiques (in Montreal, Canada) for research visit with financial support

Presentation Prize, 10th Conference in Actuarial Science & Finance on Samos 2018

Presentation Prize, Actuarial Research Conference 2016

Student Travel Award, Actuarial Research Conference 2016

Research Stays

McGill University, Montreal, Canada (3 months, with Christian Genest and Johanna Nešlehová)
February 2019 - April 2019

University of Wisconsin-Madison, Madison, US (1 week, with Peng Shi) March 2019

Technical University of Munich, Munich, Germany (1 week, with Claudia Czado) May 2018

Teaching Experience

School of Statistics, University of Minnesota

- STAT 8051: Advanced Regression Techniques Fall 2022, Fall 2023
  Core course for Ph.D. and master's students in statistics.
- STAT 5021: Statistiscal Analysis Spring 2021, Fall 2021, Spring 2022, Spring 2023, Fall 2023
  Provides an intensive introduction to statistical methods for graduate students needing statistics as a research technique.

Amsterdam School of Economics, University of Amsterdam

Teaching Certificate
University Teaching Qualification (BKO), Dutch accredited teaching certificate for higher education
March 2018

Lecturer and Course Coordinator

- Introduction Data Science: Data Preprocessing (BSc in Actuarial Science and Econometrics, 1st year) 2019
  Developed the new course for students with data science specialization
- Risk Management for Insurers and Pensions (MSc in Actuarial Science and Mathematical Finance) 2017, 2018, 2019

Teaching Assistant, led tutorials and computer lab sessions

- Life Insurance Mathematics (BSc in Actuarial Science, 2nd year) 2017, 2018, 2019, 2020
- Introduction Actuarial Science and OR (BSc in Actuarial Science, 1st year) 2018, 2019
- Empirical Project (BSc in Actuarial Science, 2nd year) 2018, 2019

University of Wisconsin-Madison

Teaching Assistant, led discussions, held office hours, graded homework, exams and projects. Ranked top ten percent in TA evaluation.
Department of Statistics, University of Wisconsin-Madison

- STAT 349 (Intermediate, Undergraduate): Introduction to Time Series Spring 2015
- STAT 571 (Graduate): Statistical Methods for Bioscience Fall 2014
- STAT 310 (Intermediate, Undergraduate): Introduction to Probability and Mathematical Statistics Fall 2013
- STAT 371 (Introductory, Undergraduate): Introductory Applied Statistics for the Life Sciences Spring 2013
- STAT 301 (Introductory, Undergraduate): Intro-Statistical Methods Fall 2012

Head TA, supervised and helped other TAs to improve and ensure teaching excellence
Department of Statistics, University of Wisconsin-Madison Fall 2013, Spring 2015

Project Assistant
Risk and Insurance Department, University of Wisconsin-Madison Fall 2015 - Spring 2017

- Built website to provide additional learning materials such as data and code for *Predictive Modeling Applications in Actuarial Science*, a two volume series written for practicing actuaries for continuing education purpose.
- Helped build the materials for the course *Loss Model*. Created multimodal presentations such as interactive visualizations and built R tutorials.

Service and Advising

Referee

Journal of the American Statistical Association (1), *Journal of Computational and Graphical Statistics* (1), *Insurance: Mathematics and Economics* (5), *Journal of Nonparametric Statistics* (1), *Risk Analysis* (1), *European Actuarial Journal* (2), *Journal of the Royal Statistical Society: Series C (Applied Statistics)* (2), *Statistica Sinica* (1), *Journal of Multivariate Analysis* (3), *Management Science (1)*, *Variance* (2)

Conference organization

- Co-organizer and chair, topic contributed papers session "Emerging Methods and Applications in Insurance Data Science"
  Joint Statistical Meetings, Washington, DC, USA August 2022

Thesis Supervision

School of Statistics, University of Minnesota

- Haoyu Chen, master's thesis 2021
- You Zu, master's thesis 2023

Amsterdam School of Economics, University of Amsterdam

Supervised 10 master's theses on various topics in insurance and finance 2018, 2019, 2020
Supervised 9 bachelor's theses on various topics in insurance and finance 2019, 2020

Dissertation Committee

- Kelly Duffy, Committee Member, Statistics M.S., University of Minnesota 2023
- Marten Thompson, Committee Member, Statistics Ph.D., University of Minnesota 2023
- Yuan Lu, Committee Member, Statistics M.S., University of Minnesota 2023
- Matthew Snodgress, Committee Member, Statistics M.S., University of Minnesota 2023
- Robert Verschuren, Committee Member, Actuarial Science & Mathematical Finance Ph.D., University of Amsterdam 2022
- Di Yang, Committee Member, Transportation Planning and Engineering Ph.D., New York University 2022
- Xiaofei Lyu, Committee Member, Statistics M.S., University of Minnesota 2021

Internal Service Activities

- School seminars committee, School of Statistics 2023 - 2024
- Member, PhD exam committee, School of Statistics 2022 - Present
- Member, CLA Assembly, College of Liberal Arts 2022 - 2024
- Member, Awards committee, School of Statistics 2021 - 2022
- Member, Computing committee, School of Statistics 2020 - 2022

Industry Experience

Advanced Analytics Intern
The Travelers Companies, St Paul, MN, USA June 2015 - August 2015

Last update: January 2, 2024