JORGE YSLAS ALTAMIRANO

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ACADEMIC POSITIONS

University of Liverpool — January 2022 - Present
Lecturer in Actuarial Mathematics — *Liverpool, UK*

University of Bern — March 2021 - December 2021
Postdoctoral Researcher — *Bern, Switzerland*

EDUCATION

PhD in Insurance and Economics — August 2017 - September 2020
University of Copenhagen — *Copenhagen, Denmark*
Thesis: Point process convergence of random walks and the estimation of multivariate heavy-tailed distributions (link)

Supervisors: Thomas Mikosch and Mogens Bladt

MSc in Actuarial Mathematics — September 2015 - June 2017
University of Copenhagen — *Copenhagen, Denmark*
Thesis: Heavy-tailed phase-type distributions (link)

Supervisor: Mogens Bladt

BSc in Actuarial Science — August 2008 - June 2011
UNAM — *Mexico City, Mexico*
Awarded as one of the three best grade point averages of the 2008-2011 class

PROFESSIONAL EXPERIENCE

Allianz Global Corporate and Specialty SE — October 2020 - February 2021
Actuarial analyst — *Munich, Germany*

SURA Mexico — May 2014 - July 2015
Financial risk analyst — *Mexico City, Mexico*

Willis Towers Watson — May 2011 - April 2014
Actuarial analyst — *Mexico City, Mexico*

PUBLICATIONS

Research interests

My research interests include extreme value theory, applied probability, actuarial modeling, and statistical theory and applications.

Submitted manuscripts

1. Bladt, M., & Yslas, J. (2026+). Cure models: from mixture to matrix distributions. *Preprint*. arXiv:2601.19774
2. Alyafie, A., Constantinescu, C., & Yslas, J. (2025+). Designing optimal bonus-malus systems under frequency-severity dependence via phase-type distributions. *Preprint*

Published peer-reviewed articles

1. Yslas, J. (2026). Phase-type frailty models: a flexible approach to modeling unobservable heterogeneity in survival analysis. *Scandinavian Actuarial Journal*, 2026(3), 295–323. doi:10.1080/03461238.2025.2520586, arXiv:2103.13142
2. Furrer, C., Sørensen, J.J., & Yslas, J. (2025). Bivariate phase-type distributions for experience rating in disability insurance. *European Actuarial Journal*, 1-37. doi:10.1007/s13385-025-00439-2, arXiv:2405.19248
3. Bladt, M., Peralta, O., & Yslas, J. (2025). Assessing continuous common-shock risk through matrix distributions. *Scandinavian Actuarial Journal*, 1-28. doi:10.1080/03461238.2025.2596025, arXiv:2507.15637
4. Bladt, M., Müller, A., & Yslas, J. (2025). matrixdist: An R package for statistical analysis of matrix distributions. *Annals of Actuarial Science*, 1-35. doi:10.1017/S1748499525100134, arXiv:2101.07987
5. Alyafie, A., Constantinescu, C., & Yslas, J. (2025). Evaluating transition rules for enhancing fairness in bonus-malus systems: An application to the Saudi Arabian auto insurance market. *Risks*, 13(1), 18. doi:10.3390/risks13010018
6. Bladt, M., & Yslas, J. (2023). Robust claim frequency modeling through phase-type mixture-of-experts regression. *Insurance: Mathematics and Economics*, 111, 1-22. doi:10.1016/j.insmatheco.2023.02.008, ssrn.4310567
7. Bladt, M., & Yslas, J. (2023). Phase-type mixture-of-experts regression for loss severities. *Scandinavian Actuarial Journal*, 2023:4, 303-329. doi:10.1080/03461238.2022.2097019, arXiv:2111.00581
8. Albrecher, H., Bladt, M., Bladt, M., & Yslas, J. (2023). Continuous scaled phase-type distributions. *Stochastic Models*, 39:2, 293-322. doi:10.1080/15326349.2022.2089683, arXiv:2103.02457
9. Albrecher, H., Bladt, M., Bladt, M., & Yslas, J. (2022). Mortality modeling and regression with matrix distributions. *Insurance: Mathematics and Economics*, 107, 68-87. doi:10.1016/j.insmatheco.2022.08.001, arXiv:2011.03219
10. Bladt, M., & Yslas, J. (2022). Heavy-tailed phase-type distributions: A unified approach. *Extremes*, 25, 529-565. doi:10.1007/s10687-022-00436-8, arXiv:2107.09023
11. Albrecher, H., Bladt, M., & Yslas, J. (2022). Fitting inhomogeneous phase-type distributions to data: The univariate and the multivariate case. *Scandinavian Journal of Statistics*, 49(1), 44-77. doi:10.1111/sjos.12505, arXiv:2006.13003
12. Heiny, J., Mikosch, T., & Yslas, J. (2021). Point process convergence for the off-diagonal entries of sample covariance matrices. *Annals of Applied Probability*, 31(2), 538-560. doi:10.1214/20-AAP1597, arXiv:2002.07771
13. Mikosch, T., & Yslas, J. (2020). Gumbel and Fréchet convergence of the maxima of independent random walks. *Advances in Applied Probability*, 52(1), 213-236. doi:10.1017/apr.2019.57, arXiv:1904.04607

In professional journals

1. Alyafie, A., Constantinescu, C., & Yslas, J. (2023). An analysis of the current Saudi Arabian no-claim discount system and its adaptability for novice women drivers. *CAS E-Forum*, Spring (May). E-forum. Winner manuscript of the 2023 CAS Ratemaking Call Paper Program

List of co-authors

Hansjörg Albrecher (University of Lausanne), Asrar Alyafie (University of Liverpool), Martin Bladt (University of Copenhagen), Mogens Bladt (University of Copenhagen), Corina Constantinescu (University of Liverpool), Christian Furrer (University of Copenhagen), Johannes Heiny (Stockholm University), Thomas Mikosch (University of Copenhagen), Allaric Müller (University of Lausanne), Oscar Peralta (ITAM), Jacob Juhl Sørensen (AkademikerPension)

RESEARCH FUNDING

- LMS Invited Lecture Series 2026. 6,000 GBP (Co-PI)
- 2025 CKER/CAS Individual Grant Competition. *Designing Bonus-Malus Systems Under Frequency-Severity Dependence*. 14,000 USD (PI)

- ICS Specialist Support Fund 2023/24. *Women Drivers in Saudi Arabia*. 6,200 GBP (PI)

TEACHING EXPERIENCE

Course responsible (4 courses) January 2022 - Present
University of Liverpool *Liverpool, UK*
- Financial and actuarial modelling in R (4 times - Notes)

Teaching assistant (3 courses) September 2017 - November 2019
University of Copenhagen *Copenhagen, Denmark*
- Econometrics 2: Statistical Analysis of Econometric Time Series (2 times)
- Basic Non-Life Insurance Mathematics

Course responsible (2 courses) August 2014 - June 2015
UNAM *Mexico City, Mexico*
- Actuarial Mathematics for Life Insurance II
- Insurance Theory

Teaching assistant (9 courses) August 2011 - June 2015
UNAM *Mexico City, Mexico*
- Probability II
- Stochastic Processes
- Actuarial Mathematics for Non-Life Insurance (2 times)
- Actuarial Mathematics for Life Insurance I (3 times)
- Actuarial Mathematics for Life Insurance II
- Insurance Theory

SUPERVISION

Doctoral students
- *Asrar Alyafie* in the thesis "Fair Pricing of Insurance for Women Drivers in Saudi Arabia" supervised jointly with Corina Constantinescu. University of Liverpool, UK. March 2022 - November 2025
- *Frederico Jorge Machado* in the project "Insurance internal models" supervised jointly with Nuno Brites. ISEG, Portugal. November 2024 - Present

Master students
- *Manuel Navarro* in the project "Applications using conditional Monte Carlo for sums." University of Liverpool, UK. Summer 2023

ADMINISTRATIVE ROLES

Program Director of the Mathematics and Economics BSc October 2022 - Present
University of Liverpool *Liverpool, UK*

IFAM seminar organizer February 2025 - Present
University of Liverpool *Liverpool, UK*

RESEARCH VISITS

- Department of Statistics at ITAM, Mexico. November 2025. Host: Laura Battagliola
- Department of Actuarial Science at ITAM, Mexico. August 2024. Host: Oscar Peralta

- Department of Mathematical Sciences of the University of Copenhagen, Denmark. May 2024. Host: Christian Furrer
- Department of Mathematical Sciences of the University of Copenhagen, Denmark. June 2023. Host: Martin Bladt
- Department of Mathematical Sciences of the University of Copenhagen, Denmark. August 2022. Host: Christian Furrer
- Department of Actuarial Science at the HEC Faculty of the University Lausanne, Switzerland. November 2019 - February 2020. Host: Hansjörg Albrecher

PRESENTATIONS

★ Indicates Invited talk

1. *Heavy-tailed phase-type distributions*.★ Probability Seminar. University of Manchester. Manchester, UK. February 2026
2. *Assessing continuous common-shock risk through matrix distributions*.★ Data Analytics in Finance Workshop. University of Liverpool. Liverpool, UK. December 2025
3. *Robust claim frequency modeling through phase-type mixture-of-experts regression*. XJTLU. Suzhou, China. December 2025
4. *Robust claim frequency modeling through phase-type mixture-of-experts regression*.★ Random Seminars. ITAM. Mexico City, Mexico. November 2025
5. *Point process convergence of random walks*.★ CIMAT Seminar. CIMAT. Guanajuato, Mexico. October 2025
6. *Evaluating transition rules for enhancing fairness in bonus-malus systems: An application to the Saudi Arabian auto insurance market*.★ 60th Actuarial Research Conference. Toronto, Canada. July 2025
7. *Phase-type frailty models: a flexible approach to modeling unobservable heterogeneity in survival analysis*. 28th International Congress on Insurance: Mathematics and Economics (IME). Tartu, Estonia. July 2025
8. *Cure models: from mixture to matrix distributions*.★ ASMF Seminar. University of Amsterdam. Amsterdam, Netherlands. January 2025
9. *Robust claim frequency modeling through phase-type mixture-of-experts regression*. FAMiLLY 2024 Workshop. York, UK. December 2024
10. *Cure models: from mixture to matrix distributions*. European Actuarial Journal Conference 2024. Lisbon, Portugal. September 2024
11. *Robust claim frequency modeling through phase-type mixture-of-experts regression*. Scandinavian Actuarial Conference 2024. Copenhagen, Denmark. August 2024
12. *Heavy-tailed phase-type distributions*.★ Risks seminar. ITAM. Mexico City, Mexico. August 2024
13. *Point process convergence of random walks*.★ IIMAS Seminar. UNAM. Mexico City, Mexico. August 2024
14. *Heavy-tailed phase-type distributions*. XJTLU-UoL-XJTU Joint Workshop. Suzhou, China. January 2024
15. *Bivariate phase-type distributions for experience rating in disability insurance*. 26th International Congress on Insurance: Mathematics and Economics (IME). Edinburgh, Scotland. July 2023
16. *Point process convergence of random walks*.★ Stochastics Seminar. University of Liverpool. February 2023
17. *Point process convergence of random walks*.★ Financial & Actuarial Series Seminar. Xi'an Jiaotong-Liverpool University. February 2023
18. *Robust claim frequency modeling through phase-type mixture-of-experts regression*. 2023 PARTY. Valencia, Spain. February 2023
19. *Phase-type mixture-of-experts regression for loss severities*. European Actuarial Journal Conference 2022. Tartu, Estonia. August 2022
20. *Phase-type regression models*.★ Seminar in Insurance and Economics. University of Copenhagen.

Copenhagen, Denmark. August 2022

21. *Phase-type mixture-of-experts regression for loss severities*. 25th International Congress on Insurance: Mathematics and Economics (IME). July 2022
22. *Phase-type regression models*. IMSV Institute Seminar. University of Bern. Bern, Switzerland. December 2021
23. *Heavy-tailed phase-type distributions: A unified approach*. Regular Variation and Related Themes. Dubrovnik, Croatia. November 2021
24. *Continuous scaled phase-type distributions*. Bernoulli-IMS 10th World Congress in Probability and Statistics. July 2021
25. *Continuous scaled phase-type distributions*. 24th International Congress on Insurance: Mathematics and Economics (IME). July 2021
26. *Inhomogeneous phase-type distributions: Fitting and applications to survival analysis*.★ Post/Doctoral Seminar in Mathematical Finance. ETH Zurich. March 2021
27. *Point process convergence of random walks and the estimation of multivariate heavy-tailed distributions*. PhD defense. Copenhagen, Denmark. September 2020
28. *Fitting inhomogeneous phase-type distributions to data*. Workshop on Advances in Applied Probability. Copenhagen, Denmark. September 2020
29. *Fitting inhomogeneous phase-type distributions to data*. Bernoulli-IMS One World Symposium 2020. August 2020
30. *Fitting inhomogeneous phase-type distributions to data*. Online International Conference in Actuarial Science, Data Science and Finance. April 2020
31. *Gumbel and Fréchet convergence of the maxima of independent random walks*. 11th International Conference on Extreme Value Analysis. Zagreb, Croatia. July 2019. *Honorary mention: Excellent young researcher paper in the category "Theory"*

CONFERENCES

- Heavy Tails in Machine Learning. London, UK. April 2024
- Extreme Value Analysis 2021. June 2021
- Lausanne-Lyon University Meeting 2020. Lyon, France. January 2020
- Data Science Summer School. Palaiseau, France. June 2019
- Workshop on New Developments in Econometrics and Time Series. Copenhagen, Denmark. September 2018
- Self-Similarity, Long-Range Dependence and Extremes. Oaxaca, Mexico. June 2018
- Statistics in Complex Systems. Copenhagen, Denmark. April 2018
- CIMAT III Summer School in Probability and Statistics. Guanajuato, Mexico. July 2010

EVENTS ORGANIZATION

- Organizer of the "Fair Insurance Pricing Workshop" at the University of Liverpool (link). June 2024

PEDAGOGICAL TRAINING

Postgraduate Certificate Academic Practice October 2022 - March 2024
University of Liverpool *Liverpool, UK*
Achieving the status of Fellow of the Advance HE

Introduction to University Pedagogy November 2017
University of Copenhagen *Copenhagen, Denmark*

CERTIFICATIONS AND OTHER STUDIES

UNAM October 2014
Diploma course in Solvency II *Mexico City, Mexico*

UNAM October 2013
Diploma course in Corporate and Stock Market Finance *Mexico City, Mexico*

Society of Actuaries (SOA) August 2012
Exam MFE - Models for Financial Economics

Society of Actuaries (SOA) December 2011
Exam FM - Financial Mathematics

Society of Actuaries (SOA) July 2011
Exam P - Probability

REVIEWER

Applied Economics Letters
Applied Probability Journals
ASTIN Bulletin
Bernoulli
Linear and Multilinear Algebra
Scandinavian Actuarial Journal
Statistics
Statistics and Risk Modeling
Statistical Inference for Stochastic Processes

LANGUAGE PROFICIENCY

English: Full professional proficiency

Spanish: Native speaker

SOFTWARE KNOWLEDGE

C/C++ R LaTeX Matlab Python

SOFTWARE DEVELOPMENT

Co-developer of the *matrixdist* R/C++ package for the efficient use of matrix distributions in applied probability and statistics. Available in CRAN