

CURRICULUM VITAE

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ACADEMIC POSITIONS

- **London School of Economics**, UK (September 2016 – present).
Professor, Department of Mathematics. (Assistant Professor until July 2018, Associate Professor until July 2019, Deputy Head August 2021 – July 2023).
- **University College London**, UK (August 2014 – September 2016).
Senior Lecturer, Department of Mathematics. Promotion to Reader in Quantitative Finance and Probability (June 2016).
(Honorary Senior Research Associate 2016–2019).
- **University of Oxford**, UK (August 2011 – July 2014).
Senior Research Fellow, Oxford-Man Institute of Quantitative Finance
(Associate member: August 2014 – October 2017).

EDUCATION

- **Columbia University**, New York, NY, USA (September 2006 – May 2011).
Ph.D., Department of Statistics. Under the supervision of I. KARATZAS; dissertation committee members: R. CONT, I. KARATZAS, D. MADAN, P. PROTTER, J. TEICHMANN.
- **University of Ulm**, Germany (October 2000 – June 2006).
Diplom (equivalent to Master's degree) in Mathematics and Management (Wirtschaftsmathematik).
- **Texas A&M University**, College Station, TX, USA (September 2004 – August 2005).
M.S. in Mathematics. Graduated early: completed two-year program in one year.

PUBLICATIONS AND PREPRINTS

- **Published and forthcoming papers in peer-reviewed journals**
(42) J. RUF, M. LARSSON, W.M. KOOLEN, and A. RAMDAS (2023). A composite generalization of Ville's martingale theorem using e-processes. *Electronic Journal of Probability*. 28(127):1-21.

- (41) A. ČERNÝ and J. RUF (2023). Simplified calculus for semimartingales: multiplicative compensators and changes of measure. *Stochastic Processes and their Applications*. 161:572-602.
- (40) J. RUF and W. WANG (2022). A note on spurious model selection. *Quantitative Finance*. 22(10):1797–1800.
- (39) J. RUF and W. WANG (2022). Hedging with linear regressions and neural networks. *Journal of Business & Economic Statistics*. 40(4):1442–1454.
- (38) A. RAMDAS, J. RUF, M. LARSSON, and W.M. KOOLEN (2022). Testing exchangeability: fork-convexity, supermartingales and e-processes. *International Journal of Approximate Reasoning*. 141:83–109.
- (37) A. ČERNÝ and J. RUF (2022). Simplified stochastic calculus via semimartingale representations. *Electronic Journal of Probability*. 27(3):1–32.
- (36) A. ČERNÝ and J. RUF (2021). Pure-jump semimartingales. *Bernoulli*. 27(4):2624–2648.
- (35) M. LARSSON and J. RUF (2021). Relative arbitrage: sharp time horizons and motion by curvature. *Mathematical Finance*. 31(3):885–906.
- (34) A. ČERNÝ and J. RUF (2021). Simplified Stochastic Calculus with Applications in Economics and Finance. *European Journal of Operational Research*. 293(2):547–560.
- (33) M. LARSSON and J. RUF (2020). Convergence of local supermartingales. *Annales de l'Institut Henri Poincaré (B) Probabilités et Statistiques*. 56(4): 2774–2791.
- (32) J. RUF and W. WANG (2020). Neural networks for option pricing and hedging: a literature review. *Journal of Computational Finance*. 24(1):1–46.
- (31) K. KARDARAS and J. RUF (2020). Filtration shrinkage, the structure of deflators, and failure of market completeness. *Finance and Stochastics*. 24(4):871–901.
- (30) J. RUF and K. XIE (2020). The impact of proportional transaction costs on systematically generated portfolios. *SIAM Journal on Financial Mathematics*. 11(3): 881–896.
- (29) P. IANNONE, C. CZICHOWSKY, and J. RUF (2020). The impact of high stakes oral assessment on students' approaches to learning: a case study. *Educational Studies in Mathematics*. 103:313–337.
- (28) J. RUF and J. WOLTER (2020). Nonparametric identification of the mixed hazard model using martingale-based moments. *Econometric Theory*. 36(2):331–346.
- (27) A. BANNER, R. FERNHOLZ, V. PAPATHANAKOS, J. RUF, and D. SCHOFIELD (2019). Diversification, volatility, and surprising alpha. *Journal of Investment Consulting*. 19(1):23–30. Runner-up for Best Factor Investing Paper 2018 by Savvy Investor (<https://www.savvyinvestor.net/blog/awards-best-factor-investing-white-paper-2018>).

- (26) J. RUF and K. XIE (2019). Generalised Lyapunov functions and functionally generated trading strategies. *Applied Mathematical Finance*. 26(4):293–327.
- (25) C. KARDARAS and J. RUF (2019). Projections of scaled Bessel processes. *Electronic Communications in Probability*. 24(43):1–11.
- (24) M. LARSSON and J. RUF (2019). Stochastic exponentials and logarithms on stochastic intervals – a survey. *Journal of Mathematical Analysis and Applications*. 476(1):2–12. Special Issue on Stochastic Differential Equations, Stochastic Algorithms, and Applications.
- (23) H. HULLEY and J. RUF (2019). Weak tail conditions for local martingales. *Annals of Probability*. 47(3), 1811–1825.
- (22) T. FISHER, S. PULIDO, and J. RUF (2019). Financial models with defaultable numéraires. *Mathematical Finance*. 29(1):117–136.
- (21) V. PROKAJ and J. RUF (2018). Local martingales in discrete time. *Electronic Communications in Probability*. 23(31):1–11.
- (20) E.R. FERNHOLZ, I. KARATZAS, and J. RUF (2018). Volatility and arbitrage. *Annals of Applied Probability*. 28(1):378–417.
- (19) I. KARATZAS and J. RUF (2017). Trading strategies generated by Lyapunov functions. *Finance and Stochastics*. 21(3):753–787.
- (18) J. RUF (2017). Piecewise constant local martingales with bounded numbers of jumps. *Electronic Communications in Probability*. 22(31):1–5.
- (17) I. KARATZAS and J. RUF (2016). Pathwise solvability of stochastic integral equations with generalized drift and non-smooth dispersion functions. *Annales de l'Institut Henri Poincaré (B) Probabilités et Statistiques*. 52(2):915–938.
- (16) I. KARATZAS and J. RUF (2016). Distribution of the time to explosion for one-dimensional diffusions. *Probability Theory and Related Fields*. 164(3):1027–1069.
- (15) C. BRUGGEMAN and J. RUF (2016). A one-dimensional diffusion hits points fast. *Electronic Communications in Probability*. 21(22):1–7.
- (14) J. BLANCHET and J. RUF (2016). A weak convergence criterion for constructing changes of measure. *Stochastic Models*. 32(2):233–252.
- (13) N. PERKOWSKI and J. RUF (2015). Supermartingales as Radon-Nikodym densities and related measure extensions. *Annals of Probability*, 43(6):3133–3176.
- (12) J. RUF (2015). The uniform integrability of martingales. On a question by Alexander Cherny. *Stochastic Processes and their Applications*, 125(10):3657–3662
- (11) J. RUF (2015). The martingale property in the context of stochastic differential equations. *Electronic Communications in Probability*. 20(34):1–10.
- (10) C. OYARZUN and J. RUF (2014). Convergence of models with bounded expected relative hazard rates. *Journal of Economic Theory*. 154:229–244.

- (9) P. CARR, T. FISHER, and J. RUF (2014). On the hedging of options on exploding exchange rates. *Finance and Stochastics*. 18(1):115–144.
- (8) P. CARR, T. FISHER, and J. RUF (2013). Why are quadratic normal volatility models analytically tractable? *SIAM Journal on Financial Mathematics*. 4:185–202.
- (7) J. RUF (2013). Negative call prices. *Annals of Finance*. 9(4):787–794.
- (6) J. RUF (2013). Hedging under arbitrage. *Mathematical Finance*. 23(2):297–317.
- (5) T.H. MCCORMICK, A. MOUSSA, J. RUF, T.D. DIPRETE, A. GELMAN, J. TEITLER, and T. ZHENG (2013). A practical guide to measuring social structure using indirectly observed network data. *Journal of Statistical Theory and Practice*, 7(1):120–132. (joint first author)
- (4) J. RUF (2013). A new proof for the conditions of Novikov and Kazamaki. *Stochastic Processes and their Applications*, 123:404–421.
- (3) N. PERKOWSKI and J. RUF (2012). Conditioned martingales. *Electronic Communications in Probability*, 17(48):1–12.
- (2) J. RUF and M. SCHERER (2011). Pricing corporate bonds in a jump-diffusion model based on an improved Brownian-bridge algorithm. *Journal of Computational Finance*, 14(3):30–45.
- (1) C. OYARZUN and J. RUF (2009). Monotone imitation. *Economic Theory*, 41(3):411–441.
- **Conference proceedings and Discussions**
- (6) M. LARSSON, A. RAMDAS, and J. RUF (2024). Contribution to the Discussion of ‘Safe testing’. *Journal of the Royal Statistical Society: Series B*.
- (5) M. LARSSON and J. RUF (2023). Contribution to the Discussion of ‘Estimating means of bounded random variables by betting’. *Journal of the Royal Statistical Society: Series B*.
- (4) P. MANGGALA, T. ATOYAN, G. SAMOSIR, J. VARSAVA, and J. RUF (2021). On augmenting the references section with a citation network visualization. *Ninth International Conference on Learning Representations (ICLR 2021). Workshop: Rethinking ML Papers*.
- (3) J. RUF and W. RUNGGALDIER (2013). A systematic approach to constructing market models with arbitrage. *Arbitrage, Credit and Informational Risks. Proceedings of the Sino-French Research Program in Financial Mathematics Conference, Beijing 2013*.
- (2) J. RUF (2010). Optimal trading strategies and the Bessel process. *Proceedings for the Actuarial and Financial Mathematics Conference, Brussels 2010*.
- (1) T.H. MCCORMICK, A. MOUSSA, J. RUF, T.D. DIPRETE, A. GELMAN, J. TEITLER, and T. ZHENG (2009). Comparing two methods for predicting opinions using social

structure. *Conference Proceedings. Joint Statistical Meetings: Washington, D.C.*
(joint first author)

- **Theses and technical reports**

- (8) A. ČERNÝ and J. RUF (2020). Supplement to: Simplified Stochastic Calculus With Applications in Economics and Finance.
- (7) J. RUF and J. WOLTER (2018). Online Appendix to: Nonparametric identification of the mixed hazard model using martingale-based moments. (*Econometric Theory*).
- (6) H. HULLEY and J. RUF (2018). A remark on H1 martingales.
- (5) M. LARSSON and J. RUF (2014). Convergence of local supermartingales and Novikov-Kazamaki type conditions for processes with jumps.
- (4) C. OYARZUN and J. RUF (2014). Online Appendix to: Convergence of models with bounded expected relative hazard rates (*Journal of Economic Theory*).
- (3) J. RUF (2011). *Optimal trading strategies under arbitrage*. Ph.D. Thesis, Columbia University.
- (2) J. RUF (2008). *B-splines of third order on a non-uniform grid*.
- (1) J. RUF (2006). *Structural default models with jumps*. Diplom thesis, University of Ulm.

- **Papers submitted to peer-reviewed journals**

- (5) M. LARSSON, A. RAMDAS, and J. RUF (2024). The numeraire e-variable and reverse information projection.
- (4) J. RUF and Y. SUN (2024). Mandate models and the inelastic market hypothesis.
- (3) H.K. KOO, K. KARDARAS, and J. RUF (2023). Estimation of growth in fund models.
- (2) A. RAMDAS, J. RUF, M. LARSSON, and W.M. KOOLEN (2020). Admissible anytime-valid sequential inference must rely on nonnegative martingales.
- (1) M. LARSSON and J. RUF (2022). Minimum curvature flow and martingale exit times.

- **Working papers**

- (2) C. OYARZUN and J. RUF (2012). Selection rules for collective decision making.
- (1) J. RUF (2011). Completeness and arbitrage.

GRANTS

- **EPSRC research grant** *Predictable variations in stochastic calculus*: £77,291 (January 2024 – December 2024).
- **EPSRC research grant** *Non-linear partial differential equations, stochastic representations, and numerical approximation by deep learning*: £79,928 (November 2021 – October 2022).

HONORS AND AWARDS

- **LSE Excellence in Education Award:** For outstanding teaching performance (July 2020).
- **LSE Teaching Promotion Award:** For outstanding teaching performance (March 2019).
- **Teaching and Learning Development Fund:** Grant by the LSE Teaching and Learning Centre (1420 GBP), together with C. CZICHOWSKY and P. IANNONE (2017–2019).
- **LSE Teaching Promotion Award:** For outstanding teaching performance (March 2018).
- **Bruti-Liberati Fellowship:** For visiting the Economics and Finance Department of University of Technology, Sydney and for giving the Bruti-Liberati Lecture at the QMF Conference (December 2013).
- **Faculty Fellowship:** For graduate study at Columbia University (2006 – 2011).
- **First Annual Morgan Stanley Prize for Excellence in Financial Markets:** First Runner Up among 97 submissions (2010).
- **e-fellows.net Scholarship:** Provided by private foundation of well-known German businesses (2000 – 2008).
- **Howard Levene Outstanding Teaching Award:** For teaching *Introduction to Statistical Reasoning* at Columbia University (2007).
- **DZ-Bank Career Prize (Karrierepreis):** Third prize among 129 submissions in the Diplom thesis competition with the highest awards by a German company (2007).
- **First-Class Honors (mit Auszeichnung):** For Master's degree, University of Ulm (2006).
- **Cusanuswerk Scholarship:** Student scholarship, funding provided by German government. Only 0.6 percent of the student population was awarded a scholarship. Criteria are academic excellence and active involvement in society. Head of the local group in 2003 – 2004, chair of the national conference in June 2004 (2002 – 2006).
- **Fulbright Scholarship:** German American exchange program (2004 – 2005).
- **AUF Scholarship:** By Texas A&M University (2004).

PRESS COVERAGE

- **Forbes:** <https://www.forbes.com/sites/simonmoore/2021/01/17/the-hidden-drag-from-the-sp-500-that-can-reduce-your-returns/?sh=78d8ecc55967> (January 2021).
- **Risk Magazine:** <https://www.risk.net/asset-management/6025496/factor-funds-do-right-things-for-wrong-reasons-intech> (October 2018).

RESEARCH VISITS / AFFILIATIONS

- Visiting Professor, ORFE, Princeton University (September 2020 – January 2021).
- Institute for Mathematical Research (FIM), ETH Zurich (September – October 2018).
- Invited Associated Professor, Tokyo University of Science (October 2016).
- Department of Mathematics, University of Padova (April 2016).
- Bruti-Liberati Visiting Fellowship, University of Technology, Sydney (November – December 2013).

TALKS

• **Invited talks**

- CQM Workshop in Statistical Machine Learning in Economics & Finance, Queen-Mary University London (February 2024).
- Frontiers in Stochastic Modelling for Finance, Palermo (October 2023).
- School of Data Science Seminar, CUHK Shenzhen (October 2023).
- Latin American Congress of Probability and Mathematical Statistics – XVI CLAPEM (July 2023).
- Oberseminar Finanz- und Versicherungsmathematik, TU and LMU Munich (May 2023).
- New Trends in Machine Learning for Finance. Imperial College London (March 2023).
- Stochastic Portfolio Theory Workshop. Imperial College London (March 2023).
- MAS Colloquium. Nanyang Technological University, Singapore (November 2022).
- Oxford Stochastic Analysis and Mathematical Finance seminar (November 2022).
- SIAM Activity Group on FME Virtual Talk Series (November 2022).
- First Seoul-London Workshop in Mathematical Finance, Seoul (September 2022).
- IMS 2022 conference, London (July 2022).
- Safe, Anytime-Valid Inference (SAVI) and Game-theoretic Statistics workshop, Eindhoven (June 2022).
- Machine Learning and Mean-Field Games, IMSI Chicago (May 2022).
- IFAM Seminar, University of Liverpool (May 2022).
- New Directions, Methods, and Applications Workshop (Advances in Optimal Decision Making under Uncertainty), IMSI Chicago (April 2022).
- Hong Kong - Singapore Joint Seminar in Financial Mathematics/Engineering (January 2022).
- Financial Mathematics Seminar, University of Padova (November 2021).
- First Florence-Paris Workshop on Mathematical Finance (October 2021).
- Thalesian Seminar, New York/London (December 2020).
- DIIIIO Seminars, Universidad Adolfo Ibáñez, Santiago (November 2020).

- Combinatorics, Games and Optimisation Seminar, LSE, London (November 2020).
- Mathematical Finance Seminar, Ritsumeikan University, Shiga (November 2020).
- Inquire UK, London (July 2020).
- Frontiers in Quantitative Finance, Oxford/London (April 2020).
- Financial Mathematics Seminar, ETH Zurich (March 2020).
- Probability / Math Finance Seminar, CMU, Pittsburgh (February 2020).
- Quantitative Methods in Finance Conference, Sydney (December 2019).
- Workshop in Honor of Eckhard Platen, Sydney (December 2019).
- ICIAM, minisymposium on Machine Learning in Finance (July 2019).
- Tenth Minghui Yu Memorial Conference, Columbia University (April 2019). Keynote.
- Mathematical Finance Seminar, Columbia University (April 2019).
- Financial Mathematics Seminar, Princeton University (April 2019).
- Bachelier Seminar, Paris (April 2019).
- Data Science and Finance, Cambodia (March 2019).
- Seminar in Mathematical Finance, Dublin City University (February 2019).
- Quantitative Methods in Finance Conference, Sydney (December 2018).
- Beyond the Classical Paradigm Workshop, Sydney (December 2018).
- Financial Mathematics Seminar, Cambridge University (November 2018).
- Probability, Stochastic Modelling and Financial Mathematics Seminar, University of Leeds (October 2018).
- The Hong Kong Polytechnic University Department of Applied Mathematics Seminar (September 2018).
- Department of Statistics. The Chinese University of Hong Kong (August 2018).
- Stochastic Analysis and Mathematical Finance, Oaxaca (May 2018).
- Financial and Insurance Mathematics Seminar, ETH Zurich (April 2018).
- Workshop on Stochastic Calculus Applied to Economics, Finance and Insurance, Santiago (March 2018).
- London Mathematical Finance Seminar, London (February 2018).
- Opening conference of the thematic semester on “Stochastic Modeling,” Verona (December 2017).
- Stochastische Analysis und Stochastik der Finanzmärkte Seminar, HU and TU Berlin (October 2017).
- Mathematical Finance and Stochastic Analysis Seminar, University of York (October 2017).
- First Gran Sasso Workshop in Mathematical Finance, L’Aquila (September 2017).
- Asymptotic Statistics of Stochastic Processes and Applications XI, St Petersburg (July 2017).

- Stochastics Seminar, Karlsruhe Institute of Technology (May 2017).
- Risk and Stochastics Conference 2017, Winton London (April 2017).
- Mathematics of Quantitative Finance Workshop, Oberwolfach (February 2017).
- Department of Systems Engineering and Engineering Management. The Chinese University of Hong Kong (January 2017).
- AHL Research Seminar, London (November 2016).
- Oberseminar Finanz- und Versicherungsmathematik, TU and LMU Munich (November 2016).
- Mathematical Finance Seminar, Ritsumeikan University, Shiga (October 2016).
- School of Management Seminar, Tokyo University of Science (October 2016).
- Stochastic Processes – Numerical Methods and Related Topics, Hanoi (August 2016).
- At the Frontiers of Quantitative Finance Workshop, Edinburgh (June 2016).
- Second International Congress on Actuarial Science and Quantitative Finance, Cartagena (June 2016).
- Stochastic Analysis and Mathematical Finance - A Fruitful Partnership, Oaxaca (May 2016).
- Bachelier Seminar, Paris (February 2016).
- Groupe de travail “Finance Mathématique, Probabilités Numériques et Statistique des Processus”, Paris 6&7 (February 2016).
- Departement Geistes-, Sozial- und Staatswissenschaften, ETH Zurich (January 2016).
- Quantitative Methods in Finance Conference, Sydney (December 2015).
- Frontiers of Quantitative Finance Workshop, Sydney (December 2015).
- Financial and Insurance Mathematics Seminar, ETH Zurich (November 2015).
- Joint Risk & Stochastics and Financial Mathematics Seminar, London School of Economics (October 2015).
- London-Paris Bachelier Workshop on Mathematical Finance, London (September 2015).
- Oberseminar zur Stochastik, Jena (June 2015).
- De Finetti Risk Seminar, Milano (May 2015).
- Conference on Stochastic Portfolio Theory and Related Topics, Columbia University (May 2015).
- Probability Seminar, Columbia University (February 2015).
- Mathematical Finance Seminar, Columbia University (February 2015).
- Financial and Insurance Mathematics Seminar, ETH Zurich (February 2015).
- Quantitative Methods in Finance Conference, Sydney (December 2014).
- Vienna Seminar in Mathematical Finance and Probability (November 2014).
- Statistics Seminar, Hebrew University, Jerusalem (November 2014).

- 2nd Workshop in Advances in Financial Mathematics, Brunel University (October 2014).
- Finance and Stochastics Seminar, Imperial College London (October 2014).
- Séminaire de Analyse-Probabilités, Dauphine, Paris (May 2014).
- Mathematical Finance: Arbitrage and Portfolio Optimization Workshop, Banff (May 2014).
- Quant Europe, London (April 2014).
- StatColloq, Harvard University (February 2014).
- Applied Probability & Risk Seminar, Columbia University (January 2014).
- Quantitative Methods in Finance Conference, Sydney (December 2013). Bruti-Liberati Lecture.
- Wima-Kongress, University of Ulm (November 2013).
- Probability Seminar, Universität Duisburg-Essen (November 2013).
- Financial / Actuarial Mathematics Seminar, UMich Ann Arbor (October 2013).
- Financial Mathematics Seminar, UT Austin (October 2013).
- Stochastic Portfolio, Arbitrage, Credit and Informational Risks Conference, Beijing (June 2013).
- Morgan Stanley, Modelling Group, New York (April 2013).
- University of Bath, Prob-L@b Seminar, Bath (March 2013).
- University of Oxford, Stochastic Analysis Seminar, Oxford (February 2013).
- UT-Austin Portugal Workshop in Mathematical Finance and Stochastic Control, Lisbon (July 2012).
- 7th Oxford-Princeton Workshop, Princeton (April 2012).
- Groupe de travail “Finance Mathématique, Probabilités Numériques et Statistique des Processus”, Paris 6&7 (March 2012).
- Seminar on Mathematical Finance, University of Vienna (March 2012).
- The Mathematics and Statistics of Quantitative Risk Management Workshop, Oberwolfach (February 2012).
- Stochastische Analysis und Stochastik der Finanzmärkte Seminar, HU and TU Berlin (January 2012).
- Stochastic Finance @ Warwick Seminars, Warwick University (January 2012).
- Joint Risk & Stochastics and Financial Mathematics Seminar, London School of Economics (January 2012).
- Economic Theory Seminar, University of Queensland (December 2011).
- School of Finance & Applied Statistics Seminar, Australian National University, Canberra (November 2011).
- Seminar in Mathematical Finance, Dublin City University (November 2011).

- Advances in Portfolio Theory and Investment Management Workshop, Oxford-Man Institute of Quantitative Finance (May 2011).
- Probability Seminar, Columbia University (February 2011).
- ORIE Colloquium, Cornell University (February 2011).
- Probability Seminar, Statistical Laboratory, Cambridge University (January 2011).
- Math Colloquium, Carnegie Mellon University (January 2011).
- Financial Mathematics Seminar, UT Austin (December 2010).
- Mathematical Finance and Probability Seminar, Rutgers (September 2010).
- Oberseminar Finanz- und Versicherungsmathematik, TU and LMU Munich (May 2010).
- Theory Workshop, Department of Economics, University of Alicante (May 2010).
- Applied Mathematics Seminar, CUNY (March 2010).

- **Contributed talks and posters**

- XXIV Workshop on Quantitative Finance, Gaeta (April 2023).
- XXI Workshop on Quantitative Finance, Naples (January 2020).
- XIX Workshop on Quantitative Finance, Rome (January 2018).
- Current Challenges in Financial Mathematics and Economics Conference, London School of Economics (August 2015).
- Quantitative Methods in Finance Conference, Sydney (2nd talk) (December 2014).
- Mathematics in Finance 2014 Conference, Skukuza (August 2014)
- First International Congress on Actuarial Science and Quantitative Finance, Bogota (June 2014)
- 2013 IMS-FPS Workshop, Singapore (June 2013).
- Research in Options Conference, Rio (December 2012).
- Young Researcher Workshop on Mathematical Finance, Berlin (October 2012).
- Workshop on Stochastic and PDE Methods in Financial Mathematics, Yerevan (September 2012).
- Quantitative Methods in Finance Conference, Sydney (December 2011).
- Modeling and Managing Financial Risks Conference, Paris (January 2011).
- Mathematical Finance and Partial Differential Equations Conference, Rutgers (December 2010, Session Chair).
- SIAM Conference on Financial Mathematics & Engineering, San Francisco (November 2010).
- Third SMAI European Summer School in Financial Mathematics, Paris (August 2010).
- Analysis, Stochastics, and Applications in honor of W. SCHACHERMAYER, Vienna (July 2010).

- Second Minghui Yu Memorial Student Conference, Columbia University (April 2010).
- AMaMef 2010, Brussels: Poster (February 2010).
- Eighth Northeast Probability Seminar, New York (November 2009).
- The Third Western Conference in Mathematical Finance, Santa Barbara (November 2009).
- Second SMAI European Summer School in Financial Mathematics, Paris (August 2009).
- Joint Statistical Meetings, Washington, D.C.: Poster (August 2009).
- Graduate Student Conference in Probability, University of North Carolina (May 2009).
- Minghui Yu Memorial Student Conference, Columbia University (April 2009).
- Joint Financial Mathematics Workshop of the Universities of Ulm and Munich (March 2009).
- Graduate Student Conference in Probability, University of Wisconsin-Madison (May 2008).

TEACHING EXPERIENCE

• Invited mini courses

- *Stochastic Portfolio Theory*: Undergraduate & Master's, FGV EMap Rio (November 2023).
- *Topics in Stochastic Portfolio Theory*: Ph.D., University of Padova (September 2019).
- *Arbitrage Relative to the Market*: Ninth European Summer School in Financial Mathematics, St Petersburg (August&September 2016).
- *Local Martingales and their Uniform Integrability*: Ph.D., University of Padova (April 2016).

• Instructor

- *Topics in Financial Mathematics*: Master's (MA420), London School of Economics and London Graduate School in Financial Mathematics (Spring 2024).
- *Empirical Finance with Equity Data*: Ph.D., London School of Economics and London Graduate School in Financial Mathematics (Spring 2021, Spring 2023).
- *Computational Methods in Financial Mathematics*: Undergraduate (MA323), London School of Economics (Spring 2021, Spring 2022, Spring 2023).
- *Probability and Stochastic Systems*: Undergraduate (ORF 309), Princeton (Fall 2020).
- *The Mathematics of the Black and Scholes Theory*: Master's (MA415), London School of Economics (Fall 2017, Fall 2018, Fall 2019).
- *Presessional*: Master's (MA400), London School of Economics (Summer 2019).

- *Mathematics of Finance and Valuation*: Undergraduate (MA310), London School of Economics (Spring 2017, Spring 2018, Spring 2019).
- *Local Martingales and the Martingale Property*: Ph.D., London School of Economics and London Graduate School in Financial Mathematics (Spring 2017).
- *Asset Pricing in Continuous Time*: Master's (MATH0085), University College London (Fall 2015).
- *Market Risk, Measures, and Portfolio Theory*: Master's (COMPG004), University College London (Fall 2014, Fall 2015).
- *Asset Pricing and Portfolio Theory*: Master's, University of Oxford (Fall 2012).
- *Introduction to Statistical Reasoning*: Undergraduate (STAT 1001), Columbia University, awarded Howard Levene Teaching Award (Fall 2007).

- **Instructor for part-time Master's courses**

- *Local and Stochastic Volatility Models*, University of Oxford (June 2012, July 2015, April 2016, April 2017, April 2018, May 2019).
- *Measure Changes*, University of Oxford (March 2013, March 2014, March 2015, March 2016, April 2017, April 2018, May 2019).
- *Statistics with Python*, University of Oxford (November 2016, November 2017).
- *Discrete Martingales*, University of Oxford (January 2013).
- *Introduction to Probability*, University of Oxford (January 2013).
- *Introduction to Econometrics*, University of Oxford (November 2012).

- **LSE Summer School**

- Computational Methods in Financial Mathematics (50%, Summer 2018; 50%, Summer 2019; 50%, Summer 2021; 50%, Summer 2022; 50%, Summer 2023).
- Real Analysis (25%, Summer 2021; 50%, Summer 2022; 50%, Summer 2023).
- Introduction to Financial Mathematics (33%, Summer 2019).
- Introduction to Calculus (33%, Summer 2019).
- The Mathematical Foundations of the Black & Scholes Option Pricing Theory (50%, Summer 2018).
- Statistical Methods in Risk Management (33%, Summer 2018).

- **Tutor / Teaching Assistant**

- *Applied Mathematics*: Undergraduate, Exeter College, University of Oxford (Spring 2012, Summer 2012, Summer 2013).
- *Stochastic Control and Dynamic Asset Allocation*: Master's, University of Oxford (Spring 2012).
- *Probability II*: Ph.D., Columbia University (Spring 2011).
- *Probability I*: Ph.D., Columbia University (Fall 2008, Fall 2010).

- *Stochastic Methods in Finance*: Master’s, Columbia University (Spring 2008, Fall 2009).
- *Mathematics for Business Majors II*: Undergraduate, University of Ulm. Head Teaching Assistant: led seven teaching assistants and prepared final exam (Summer 2004).
- *Mathematics for Business Majors I*: Undergraduate, University of Ulm (Winter 2003/2004).
- *Measure Theory and Ordinary Differential Equations*: Undergraduate, University of Ulm (Winter 2002/2003).
- *Introduction to Computer Science II*: Undergraduate, University of Ulm (Summer 2002).
- *Introduction to Computer Science I*: Undergraduate, University of Ulm (Winter 2001/2002).

ADVISING

• Doctoral students

- Y. SUN (September 2021 – present). LSE.
- W. WANG (April 2016 – April 2021). *Statistical Hedging with Neural Networks*. LSE.
- K. XIE (November 2015 – February 2020). *On functionally generated portfolios*. UCL.

• Master thesis supervision

- L. GERRITSE (September 2021). *Machine learning in finance: an introduction to deep hedging*. LSE.
- H. ZHANG (September 2021). *Deep learning with applications to asset pricing and price prediction*. LSE.
- P. BROCK (September 2021). *Brownian motion and stochastic analysis with applications to modelling of financial markets*. LSE.
- J. MÜSEBECK (June 2021). *Stochastic portfolio theory and the momentum effect*. University of Oxford.
- M. MASIAK (September 2020). *Bayesian neural networks for financial data*. LSE.
- M. ESSA (September 2020). *Modern techniques for risk managing derivatives*. LSE.
- P. KOTZAMANI (September 2019). *Arbitrage-free modelling of SABR*. LSE.
- A. BUCHARD (April 2019). *Mean-reversion control and volatility harvesting in statistical arbitrage*. ETH Zurich.
- N. SUBBA (September 2018). *Multi-level Monte Carlo methods with applications in finance*. LSE.
- G. WERGEN (April 2018). *Record statistics of fractal stochastic processes and intra-day stock prices*. University of Oxford.
- S. STOTAS (January 2018). *Pinning of options*. University of Oxford.

- X. LIU (September 2017). *Corporate bond defaults: models and simulations*. LSE.
- S. PERFILIEV (April 2017). *The forward-looking equity risk premium of the Ross recovery theorem*. University of Oxford.
- S. BOCHICCHIO (November 2016). *Backtesting value at risk and expected shortfall with underlying volatility clustering and fat tails*. University College London.
- M. BÜCHNER (November 2016). *Monte Carlo valuation of multi-callable options: lower & upper bound algorithms*. University College London.
- M. MERVILLE (November 2016). *S&P 500 index and investment strategies*. University College London.
- Y. XUE (November 2016). *Estimating discretely observed Markov process*. University College London.
- R. CHEN (June 2016). *Accelerated share repurchase programs*. University of Oxford.
- T. NIKOLAYZIK (June 2016). *FX option pricing using local stochastic volatility models*. University of Oxford.
- L. CHEN (November 2015). *A study on the optimal sample size for backtesting*. University College London.
- L. DOU (November 2015). *Transition matrix analysis of mortgages*. University College London.
- D. XIE (November 2015). *On the Skorokhod embedding problem*. University College London.
- W. WANG (November 2015). *Optimal execution under nonlinear transient market impact model*. University College London.
- R. ZHUMANOVA (November 2015). *Algorithmic differentiation for option pricing*. University College London.
- C. THIERFELDER (June 2015). *On bivariate Ornstein-Uhlenbeck processes*. University of Oxford.
- C. BALDERER (October 2014). *Ross recovery and applications to interest rate models*. University of Oxford.
- G. LIU (June 2014). *Generalised hyperbolic model for portfolio management*. University of Oxford.
- T. SPEARS (June 2013). *On estimating the risk-neutral and real-world probability measures*. University of Oxford.
- H.M. TSUI (April 2013). *Ross recovery theorem and its extension*. University of Oxford.
- Y. ZHANG (June 2012). *Market models in stochastic portfolio theory*. University of Oxford.

- **BSc thesis supervision**

- S. NOVAKOVA (July 2023). *Fire sales: hidden endogenous risk?*. LSE.
- F. ABOU-JAOUDE (July 2022). *Discrete stochastic portfolio theory and cryptocurrencies*. LSE.
- R. PANG (July 2022). *A generalised Black-Litterman model*. LSE.

NON-ACADEMIC BOARDS

- Expert Council for the “Pilot Project on Environmental Stress Testing. Testing Corporate Loan Portfolios for Drought Scenarios” (October 2015 – January 2017).
Launched by the Finance Initiative of the United Nations Environmental Programme (UNEP-FI) and the Global Canopy Programme as leaders of the Natural Capital Declaration, and the German International Cooperation (GIZ) under its Emerging Markets Dialogue on Green Finance, commissioned by the German Federal Ministry for Economic Cooperation and Development (BMZ).

UNIVERSITY SERVICE AND PROFESSIONAL INVOLVEMENT

- **Editorships**
 - International Journal of Theoretical & Applied Finance (2021 – present).
 - Stochastic Models (2019 – present).
 - Applied Mathematical Finance (2017 – present).
- **Organization of conferences, seminars, and lecture series**
 - *Second Workshop on Machine Learning for PDEs*. Co-organized (April 2023).
 - *First Seoul-London Workshop in Financial Mathematics*. Co-organized (September 2022).
 - *Workshop on Machine Learning for PDEs*. Co-organized (September 2022).
 - *London Mathematical Finance Seminar*. Co-organized (September 2014 – May 2016, January 2017 – May 2020). Obtained industry sponsorship.
 - *London Probability Seminar*. Co-organized (January 2017 – July 2018).
 - *2018 Workshop on Finance, Insurance, Probability and Statistics (FIPS 2018)*. Co-organized (September 2018).
 - *Thera Stochastics – A Mathematics Conference in Honor of Ioannis Karatzas* (www.math.columbia.edu/~thera). Co-organized (May 2017).
 - *London-Paris Bachelier Workshop on Mathematical Finance 2016*. Co-organized (September 2016).
 - *OMI Lecture Series for Young Researchers* at University of Oxford. Started lecture series; invited Shige Peng (January 2013), Kerry Back (May 2013), Mike Lipkin (October 2013).

- Conference *Probability, Control, and Finance* (www.math.columbia.edu/~procofin). Co-organized scientific conference with over 180 participants (June 2012).
- *Minghui Yu Memorial Student Conference* at Columbia University. Co-organized inaugural departmental conference (April 2009).

• **Referee for the following academic journals**

- Annales de l'Institut Henri Poincaré (B) Probabilités et Statistiques
- Annals of Applied Probability
- Annals of Finance
- Applied Mathematical Finance
- Applied Stochastic Models in Business and Industry
- Bernoulli
- Biometrika
- Discrete and Continuous Dynamical Systems Series B
- Electronic Communications in Probability
- Electronic Journal of Probability
- Finance and Stochastics
- International Journal of Approximate Reasoning
- Journal of Applied Probability
- Journal of Economic Dynamics and Control
- Journal of Business & Economic Statistics
- Journal of Risk
- Journal of Theoretical Probability
- International Journal of Theoretical and Applied Finance
- Journal of Mathematical Analysis and Applications
- Mathematical Finance
- Mathematics and Financial Economics
- Mathematics of Operations Research
- New England Journal of Statistics in Data Science
- Operation Research Letters
- Paris – Princeton Lectures Notes on Mathematical Finance
- Probability and Mathematical Statistics
- Proceedings of the National Academy of Sciences of the United States of America
- Scandinavian Journal of Statistics
- SIAM Journal on Control and Optimization
- SIAM Journal on Financial Mathematics
- Springer book series
- Statistics and Probability Letters

- Stochastic Models
- Stochastic Processes and their Applications
- Stochastics
- Systems & Control Letters
- **Referee for grants**
 - EPSRC (UK)
 - ETH Zurich Research Grants
 - FONDECYT (National Fund for Scientific and Technological Development Chile)
 - Hong Kong Research Grants Council
- **Doctoral dissertation committee member**
 - T. BHUDISAKSANG. University of Oxford (July 2022).
 - Z. ZURIC. Late Stage Review. Imperial College, London (December 2021).
 - G.A. GAEL. Referee for doctoral dissertation. Scuola Normale Superiore, Pisa (May 2020).
 - T. BERNHARDT. London School of Economics (January 2018).
 - A. VERVUURT. University of Oxford (February 2017).
 - Y. JIANG. Transfer. University College London (August 2016).
 - M. LEISS. ETH Zurich (January 2016).
 - C. N. HUY. Referee for doctoral dissertation. University of Padova (November 2015).
 - A. VERVUURT. Transfer. University of Oxford (November 2014).
 - S. SADHUKHAN. Columbia University (October 2012).
- **Other service for community**
 - Assessment committee for Tenure-track and Associate Professor positions at Aarhus University (July – August 2022).
- **University administration**
 - Department Deputy Head for Teaching, London School of Economics. (August 2021 – July 2023).
 - Departmental Teaching Committee, London School of Economics. (September 2019 – December 2019, September 2020 – August 2023).
 - Director of the MSc Programme Financial Mathematics, London School of Economics. (July 2017 – December 2018, July 2020 – August 2021).
 - London Graduate School in Mathematical Finance Steering Committee member (August 2020 – August 2021).
 - Reading group of doctoral students in financial mathematics, London School of Economics. (January 2017 – December 2019).
 - Chair of the Examination Board for the MSc Program in Financial Mathematics, University College London. (2016).

- Faculty hiring committee, University College London. (January 2016).
- Departmental deputy safety officer and fire marshall, University College London. (2015 – 2016).
- E-learning champion, University College London. In charge of departmental e-learning strategy. (2014 – 2015).
- Student representative, Columbia University. Organized 2-day student retreat; wrote a new student handbook jointly with the Director of Graduate Studies; participated in faculty meetings; participated in new faculty recruitment (2008 – 2009).
- Student representative, University of Ulm. Represented students in faculty meetings and various committees including a new faculty recruitment committee (2000 – 2004).

PROFESSIONAL EXPERIENCE

- **Morgan Stanley**, New York, USA (June – August 2009 & May – July 2010).
Summer Associate in investment banking division (securitized products group). Developed and implemented model for UK non-conforming mortgages; designed model for automatic valuation of US commercial mortgages.
- **JPMorgan**, New York, USA (June – August 2008).
Summer Associate in investment banking division, quantitative research (equity derivatives group). Modelled local and stochastic volatility and analyzed for statistical robustness; implemented pricing methods in C++ and calibrated model parameters.
- **d-fine GmbH**, Frankfurt, Germany (June – July 2006).
Intern in risk management consulting. Supported implementation of Basel II system; designed improved implementation for data upload system; developed IT concept for extracting single trade data.
- **Commerzbank**, Frankfurt, Germany (February – April 2004).
Intern in investment banking division, quantitative research (foreign exchange group). Implemented mathematical model for the valuation of derivatives (key words: stochastic volatility, finite differences, C++) and calibrated the model parameters for exotic derivatives.
- **Rohde & Schwarz**, Munich, Germany (November 1998, July 1999).
Intern in research division. Wrote software specification for a literature ordering system and related statistics about company patents.

SKILLS

- **Languages:** German (native), English (fluent), Spanish (intermediate).
- **Programming/Computing:** C/C++, Matlab, Python, R.

- **Actuary:** Passed all theoretical exams for actuaries from DAV (German Association of Actuaries, 2004).

ADDITIONAL INFORMATION

- **Leo-Club Schwaben**, Günzburg, Germany (2001 – 2008).
Community service organization; *President* (2003 – 2004); *Vice-President* (2002 – 2003); planned and coordinated community service activities; awarded the 100% Leo Club President Certificate for outstanding achievements and excellence in leadership (July 2004).
- **Bavarian Red Cross**, Günzburg, Germany (1999 – 2004).
Paramedic.