

Juozas Vaicenavicius

Curriculum Vitae

Department of Information Technology
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Education

2012–2017 **PhD in Mathematics**, UPPSALA UNIVERSITY, Sweden

- PhD thesis *Optimal Sequential Decisions in Hidden-State Models* defended in June, 2017. Opponent: Prof. Huy en Pham, University Paris Diderot (Paris 7).
- Licentiate thesis *Optimal Stopping under Drift Uncertainty* (2015). Opponent: Dr P. Gapeev (LSE).
- Research in Bayesian Statistics, Quantitative Finance, and Stochastic Optimisation.
Main interests:
 - sequential analysis (hypothesis testing, estimation, change-point detection),
 - optimal trading strategies,
 - statistical signal processing (filtering).
- Completed PhD courses on Machine Learning, Probability, Geometry, Algebra among others.

Financial Mathematics & Stochastic Processes: postgraduate schools

- *Z urich Spring School on L evy processes*, ETH Z URICH & UNIVERSITY OF Z URICH, 2015.
- *European Summer School in Financial Mathematics*, UNIVERSITY OF OXFORD, 2014.
- *Bachelier Winter School in Financial Mathematics*, Metabief, France, 2014.
- *Ess en Lectures on Stochastic Geometry*, Prof. F. Baccelli (University of Texas, Austin), 2014.
- *European Summer School in Financial Mathematics*, UNIVERSITY OF VIENNA, 2013.
- *Princeton Summer School in Financial Mathematics*, PRINCETON UNIVERSITY, 2013.

2008–2012 **Master of Mathematics** (MMath, 4-year studies), UNIVERSITY OF OXFORD, UK

- Thesis *Approximation of a large-basket index with an application to the pricing of variance options*.
- Specialised in Stochastic Processes, Financial Mathematics, PDEs, and Functional Analysis.

2004–2008 **High school diploma**, VILNIUS LYCEUM, Lithuania

- Among the top scorers in the country (awarded by the prime minister).

Experience

Academic

2017–
present **Researcher**, *Department of Information Technology*, UPPSALA UNIVERSITY

Conduct research in Machine Learning & Statistics. Main interests: Deep Neural Networks, Bayesian Methods, Probabilistic Modelling.

2015–2017 **Lecturer**, *Master's programme in Financial Mathematics*, UPPSALA UNIVERSITY

Full responsibility (course materials, lectures, exams) for *Measure Theory and Stochastic Integration*. Excellent (5 out of 5) in teaching evaluation by students.

2013–2017 **Class tutor**, *Bachelor's programme in Engineering*, UPPSALA UNIVERSITY

Taught courses: *Probability & Statistics*, *Linear Algebra II*, *Calculus I-II*.

Summer
2011 **Research Intern**, *Mathematical Institute*, UNIVERSITY OF OXFORD

Explored a new method for the pricing of volatility derivatives on a large-basket index.

Industrial

2017–
present **Researcher**, *Concept Development Team*, AUTOLIV INC.

Work on Machine Learning for Autonomous Driving.

Summer
2010 **Intern**, *Product Development*, EUREX EXCHANGE, London

Implemented a scenario analysis tool for the VSTOXX volatility index; distributed to clients.

Summer
2009 **Intern**, *Product Strategy*, EUREX EXCHANGE, Frankfurt

Developed a 'cheapest to deliver' analysis tool for the Italian Government Bond futures.

Computer skills

Languages: **Python** (full working proficiency): general programming, Machine Learning ('scikit-learn', 'numpy', 'pandas', 'tensorflow', 'keras'), scripting, web scraping. Experience through ML and personal coding projects.

R (full working proficiency): visualisations ('ggplot2', 'animate'), statistics, simulations, numerical solutions to SDEs, PDEs. Experience through numerical calculations and visualisations for my research and teaching.

Mathematica (full working proficiency), **Bash shell** (working proficiency), **C** (limited working proficiency), **Spark** (limited working proficiency).

Other: **LaTeX** (full working proficiency), **Git** (full working proficiency).

Research

Papers

- **Optimal stopping of a Brownian bridge with an unknown pinning point** (with E. Ekström). Submitted, 2017.
- **Asset liquidation under drift uncertainty and regime-switching volatility**. Submitted, 2017.
- **Optimal liquidation of an asset under drift uncertainty** (with E. Ekström). *SIAM Journal on Financial Mathematics*, 2016.
- **Bayesian sequential testing of the drift of a Brownian motion** (with E. Ekström). *ESAIM: Probability and Statistics*, 2015.
- **The 3/2-model as a stochastic volatility approximation for a large-basket price-weighted index** (with B. Hambly). *International Journal of Theoretical and Applied Finance*, 2015.

Manuscripts

- **Quickest disorder detection under drift uncertainty** (with E. Ekström), 2017.

Selected conference presentations

Talk *World Congress of the Bachelier Finance Society*, New York, USA, 2016.

Talk *Stochastic Processes and Their Applications*, Oxford, UK, 2015.

Talks *Bachelier Colloquium on Math Finance and Stochastic Calculus*, Metabief, France, 2014, 2015.

Poster *Geilo Winter School in Machine Learning*, Geilo, Norway, 2017.

Grants & Awards

Travel grants: ○ *Liljewalch Travel Scholarship (2015, 2016)*, *European Summer School in Financial Mathematics (2014, 2013)*, *Linda Peetre memorial fund (2013)*, *Knut and Alice Wallenberg foundation (2013)*.

Study grant: ○ *Eurex/Deutsche Boerse Scholarship (2009)* – funded the four-year studies at Oxford.

Science Olympiads: Top places (2005-2008): 1st place in *Lithuanian Mathematics Competition*, *Lithuanian Team Mathematical Olympiad*, *Lithuanian Physics Competition*; among top 20 in *Lithuanian Computing Olympiad*.

Positions of Responsibility

2016 **Organiser**, *Bayesian Meeting*, Uppsala, Sweden

- Initiated and organised a conference (8 speakers) on Bayesian methods (≈ 60 participants).

2012–present **Organiser** (Chief 2012-2015), *Meeting of Early-Career Mathematicians*, Lithuania

- Organised five conferences presenting the work of early-career mathematicians (≈ 80 participants).

Earlier positions Held within 2009-2012. President (Oxford University Lithuanian Society), Publicity Secretary (Oxford University Mathematical Society 'The Invariant'), Treasurer (Oxford University Socrates Philosophical Society).

Referees

Available upon request.