

# Juozas Vaicenavicius

## Curriculum Vitae

Updated: Tuesday 2<sup>nd</sup> January, 2018

### Education

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

- PhD thesis *Optimal Sequential Decisions in Hidden-State Models* defended in June, 2017. Opponent: Prof. Huyên 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 statistical procedures (hypothesis testing, estimation, change-point detection),
  - trading strategies and valuation of derivatives,
  - statistical signal processing (non-linear filtering).
- Completed PhD courses on Machine Learning, Probability, Geometry, Algebra among others.

#### Postgraduate schools: Financial Mathematics & Stochastic Processes

- *Zürich Spring School on Lévy processes*, ETH ZÜRICH & UNIVERSITY OF ZÜRICH, 2015.
- *European Summer School in Financial Mathematics*, UNIVERSITY OF OXFORD, 2014.
- *Bachelier Winter School in Financial Mathematics*, Metabief, France, 2014.
- *Essén 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, including BA 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  
Research in Machine Learning & Statistics.

Main interests: Bayesian Methods, Deep Neural Networks, Probabilistic Modelling.

Other responsibilities: university advisor for master's thesis in industry (SAAB), teacher of Deep Learning computer lab for master's students, organiser of Bayesian Deep Learning reading group.

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

2011 Explored a new method for the pricing of volatility derivatives on a large-basket index.

#### Cooperate

2017–  
present **Researcher**, *Concept Development Team*, AUTOLIV INC.  
Work on Machine Learning for Autonomous Driving.

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

2010 Implemented a scenario analysis tool for the VSTOXX volatility index; distributed to clients.

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

2009 Developed a 'cheapest to deliver' analysis tool for the Italian Government Bond futures.

## Computer skills

Languages: **Python** (full working proficiency): general programming, deep learning ('tensorflow', 'keras'), general machine learning ('scikit-learn', 'numpy', 'pandas'), scripting, web scraping.

**R** (full working proficiency): visualisations ('ggplot2', 'animate'), statistics, simulations, numerical solutions to SDEs, PDEs.

**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

- **Monotonicity and robustness in Wiener disorder detection** (with E. Ekström). Submitted, 2017.
- **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.

### Selected conference talks

**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.

## 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): 1<sup>st</sup> 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 ( $\approx 60$  participants).
- 2012–present **Organiser** (Chief 2012-2015), *Meeting of Early-Career Mathematicians*, Lithuania
- Organised five conferences presenting the work of early-career mathematicians ( $\approx 80$  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.