

Academic Interests

Probabilistic machine learning and Bayesian statistics, pattern recognition, time series analysis, bioinformatics, causal inference, Gaussian processes, uncertainty quantification

Academic Positions

- 2022–present **Assistant Professor**, Institute for Computing and Information Sciences (ICIS), Faculty of Science, Radboud University
- 2018–2022 **Post Doc**, Institute for Computing and Information Sciences (ICIS), Faculty of Science, Radboud University
- Jan 2018 - Sep 2018 **Research Associate**, Division of Informatics, Imaging, and Data Science, The University of Manchester
- 2014–2018 **Ph.D. researcher**, Econometrics, Maastricht University

Education

- 2014–2019 **Ph.D.**, Econometrics, Maastricht University
 - Thesis *Bayesian Inference in Multivariate Nonlinear State-Space Models*
 - Supervisors Jean-Pierre Urbain, Michael Eichler
- 2013–2014 **M. Sc.**, Economic and Financial Research, track Econometrics, Maastricht University
 - Thesis *Graphical Multivariate Stochastic Volatility Models: Estimation and Model Selection*
 - Supervisor Michael Eichler
- 2012–2013 **M. Sc.**, Econometrics and Operations Research, track Econometrics, Maastricht University
 - Thesis *Conditional Independence and Markov Equivalence in (Granger-causal) Graphical Models*
 - Supervisor Michael Eichler

Publications

- 2022 Non-parametric synergy modeling of chemical compounds with Gaussian processes (*BMC Bioinformatics*)
 - Authors Yuliya Shapovalova, Tom Heskes, Tjeerd Dijkstra
- 2021 “Exact” and approximate methods for Bayesian inference: stochastic volatility case study. *Entropy*, 23(4), 466.
 - Authors Yuliya Shapovalova
- 2021 Multivariate Count Data Models for Time Series Forecasting. *Entropy* 23.6 (2021): 718.
 - Authors Yuliya Shapovalova, Nalan Bastürk, Michael Eichler

2020 Graphical causal models and imputing missing data: a preliminary study. *International Conference on Information Processing and Management of Uncertainty in Knowledge-Based Systems*. Springer, Cham, 2020.

Authors Rui Jorge Almeida, Greetje Adriaans, Yuliya Shapovalova

Working papers

Improving precipitation nowcasting for high-intensity events using deep generative models with balanced loss and temperature data

Authors Charlotte Cambier van Nooten, Koert Schreurs, Jasper S. Wijnands, Maurice Schmeits, Kirien Whan, Yuliya Shapovalova

Measuring and quantifying uncertainty in volatility spillovers: a Bayesian approach

Authors Yuliya Shapovalova, Michael Eichler

Improving Gaussian processes drug-drug synergy modeling with monotonicity constraints

Authors Yuliya Shapovalova, Tom Heskes, Tjeerd Dijkstra

Biomarker development with additive Gaussian processes in high-resolution pesticide mixture exposures using the springtail *Folsomia candida*

Authors Ruben Bakker, Yuliya Shapovalova, Tjeerd Dijkstra, Dick Roelofs, Tom Heskes, Kees van Gestel, Katja Hoedjes

Modelling the mRNA degradation dynamics of *Drosophila melanogaster* early development

Authors Lauren Forbes, Yuliya Shapovalova, Jenny Love, Hilary Ashe, Magnus Rattray

Supervision of students

Master thesis supervision

2022 Charlotte Cambier van Nooten "Precipitation nowcasting for high-intensity events using deep generative models"

2022 Jaap Dijkstra "Graph Neural Networks for Grid Expansion"

2021 Luke Reijnen "Scaling Graph Convolutional Neural Networks"

2021 Koert Schreurs "Precipitation Forecasting from Radar Images with Generative Adversarial Networks"

2020 Bob de Ruiter "Multi-model Ensemble for Medium-Term Precipitation Using Convolutional Neural Networks"

2020 Sonja Füllhase "Testing the $n - 1$ principle with Graph Neural Networks"

2019 Sander ter Stege "Optimal Demand Forecasting in-practice"

Bachelor thesis supervision

2018 Jaap Dijkstra "Gaussian Processes versus Autoregressive Wild Bootstrap: Climate Application"

Teaching Experience

Lecturer

- 2019 – 2022 Statistical Machine Learning (responsible for practical sessions and some of the lectures)

Teaching Assistant

- 2019 – 2022 Machine Learning in Practice (supervision of three teams each year in Kaggle competitions)
- 2019 – 2022 Research Seminar Data Science (supervision of 2-3 students each year in writing referee reports)

Teaching Assistant/Tutor (Problem-Based Learning)

- 2016 – 2017 Probability Theory
- 2014 – 2017 Quantitative Methods
- 2014 – 2017 Quantitative Business and Statistics

Research Grants and Scholarships

- 2021 Green Information Technology voucher (€30.000). "STORM: Switch Tagging and Outlier Recognition for power grid Measurements", with Roel Bouman (RU), Tom Heskes (RU), Jacco Heres (Alliander)
- 2020 Educational Innovation grant at Radboud University (€10.000). "Semi-automated assignment grading and evaluation using Jupyter notebooks", with Chris Kamphuis, Gabriel Bucur, Lisa Tostrams, Tom Claassen, Tom Heskes
- 2017 Scholarship to attend the SMC 2017
- 2016 International Travel Grant for Graduate Students

Other Academic Activities

Program Committee Member

- 2019 - 2021 UAI, NeurIPS, ICML, ICLR

Referee Activity

- 2019 - 2021 IEEE Transactions on Neural Networks and Learning Systems, Transactions on Knowledge and Data Engineering, PLOS ONE

Presentations

- 2021 "Non-parametric drug synergy modeling with Gaussian processes". Faculty seminar, Maastricht University
- 2021 "Modelling the mRNA degradation dynamics of *Drosophila melanogaster* early development", GRIND seminar, Manchester University
- 2020 "Gaussian processes in computational biology: an introduction". Group seminar, Vrij Universiteit Amsterdam
- 2017 "Volatility spillovers with multivariate stochastic volatility models". Radboud University, Data science group, Nijmegen

- 2016 "Volatility spillovers with multivariate stochastic volatility models". Workshop on Advances in Quantitative Economics, Maastricht 19-20th of December
- 2016 "Advances in Bayesian computations with application to stochastic volatility models", CFE-ERCIM Conference, Seville.
- 2016 "Volatility spillovers with multivariate stochastic volatility models", 15ème Journée d'Économétrie, EconomiX-CNRS, Université Paris Ouest - Nanterre La Défense
- 2016 "Bayesian inference in multivariate stochastic volatility models". Faculty seminar, Aix-Marseille University (FRUMAM, School of Mathematics)
- 2015 "Volatility spillovers with multivariate stochastic volatility models". CFE-ERCIM 2015, London

Poster Presentations

- 2018 Advances in Data Science 2018, Manchester, United Kingdom
- 2017 ESOBE 2017, Maastricht, the Netherlands
- 2017 Sequential Monte Carlo Workshop 2017, Uppsala, Sweden, 29.08-1.09

Workshops and Tutorials Attended

- 2018 Gaussian Processes Summer School, Sheffield, The UK
- 2017 Sequential Monte Carlo Workshop, Uppsala, Sweden
- 2017 Validating and Expanding Approximate Bayesian Computation Methods, Banff, Canada
- 2016 Bayesian Statistics and Algorithms, CIRM, Marseille, France
- 2014 Multivariate Time Series: Bayesian Dynamic Modelling and Forecasting, Pisa, Italy

Computer Skills

- Everyday Python, R, Fortran, \LaTeX
- Experienced Matlab
- Basic C, SQL, Gauss, Stata, SPSS

Languages

- Russian Mother tongue
- English Fluent
- Dutch C1