Paweł Morzywołek

Contact Details

Ghent University
Department of Applied Mathematics, Computer Science and Statistics
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Education

11/2019 - present	**PhD in Statistical Data Analysis** Ghent University, Belgium Focus areas: Causal Inference, Dynamic Treatment Regimes Research project: Causal inference methods to optimize clinical decision-making in treatment initiation based on routinely collected data Advisors: Dr. Johan Steen, Prof. Wim Van Biesen, Prof. Stijn Vansteelandt
09/2013 - 08/2015	**Master Studies in Mathematics** ETH Zurich, Switzerland Focus areas: Statistical Learning, Mathematical Finance Master thesis: Non-parametric methods for estimation of Hawkes process for high-frequency financial data Advisors: Dr. Vladimir Filimonov, Prof. Peter Bühlmann, Prof. Didier Sornette
01/2014 - 04/2014	**Study Abroad in Statistics and Actuarial Science** University of Waterloo, Canada Focus areas: Statistical Learning, Machine Learning, Dependence Modelling
09/2010 - 09/2014	**Bachelor Studies in Mathematics** ETH Zurich, Switzerland Focus areas: Probability Theory, Statistics Bachelor thesis: Convergence of discrete random trees to the continuum random tree Advisor: Prof. Pierre Nolin

Work Experience

04/2019 - 10/2019	**Senior Consultant**, EMEIA Financial Services - Actuarial Ernst & Young, Zurich, Switzerland *Supported development of premium and reserve risk modules for the Swiss Solvency Test internal risk model of an international insurance company.*
10/2018 - 03/2019	**Senior Consultant**, EY Wavespace Artificial Intelligence Center Ernst & Young, Madrid, Spain *Supported enhancement of a credit risk model with machine learning algorithms for a bank from the United Kingdom.* *Supported development of a validation framework for machine learning models aiming to prevent discriminatory outcomes.*

02/2016 - 09/2018	**Consultant**, EMEIA Financial Services - Actuarial Ernst & Young, Zurich, Switzerland *Supported development of Swiss Solvency Test (SST) internal models for premium, reserve and business risks for a major Swiss insurance company.* *Participated in several audits and reserving reviews for non-life and re- insurance companies.* *Developed process automation of a reserving review for a reinsurance company.* *SST, Solvency 2 and appointed actuary mandates support for various non-life and re- insurance companies.*
09/2015 - 12/2015	**Teaching Assistant**, African Institute for Mathematical Sciences (AIMS) Muizenberg, Cape Town, South Africa *Supervised students in the multiple courses in mathematics, physics and computer science (i.e. Introduction to Scientific Computing in Python, Problem Solving in Physics, Probability and Statistics, Algebra, Finite-dimensional Quantum Mechanics and Quantum Computing).* *Gave a class on "Stochastic asset models and their analysis using Monte Carlo methods" at the workshop "Mathematical and Computer Methods for Understanding Financial Markets" organised at AIMS.*
02/2015 - 08/2015	**Research Assistant**, Professorship of Computational Social Sciences *Department of Humanities, Social and Political Sciences* ETH Zurich, Switzerland Professorship of Computational Social Sciences *Analysed systemic risk in banking system and modelled propagation of perturbations in financial interbank lending networks.* *Developed an agent-based model for an interbank lending network.*
06/2014 - 12/2014	**Research Assistant**, Chair of Entrepreneurial Risks *Department of Management, Technology and Economics* ETH Zurich, Switzerland Chair of Entrepreneurial Risks *Analysed parametric and non-parametric methods for estimation of a multivariate Hawkes process for financial data.* *Applied the Hawkes process to search for irregular trading behaviour in high-frequency financial data.* *Developed and backtested a model for detecting extreme events in financial data and used it as an early warning system in analysis of financial markets.*

Teaching

Spring 2023	**Causal Machine Learning**, Ghent University, Belgium
Spring 2020/2021/2022	**Causality and Missing Data**, Ghent University, Belgium
Fall 2015	**Introduction to Scientific Computing in Python, Problem Solving in Physics, Probability and Statistics, Algebra, Finite-dimensional Quantum Mechanics**, African Institute for Mathematical Sciences (AIMS), South Africa

Talks and Presentations

08/2022 | **Sequential Counterfactual Prediction to Support Individualized Decisions on Treatment Initiation**
Annual Conference of the International Society for Clinical Biostatistics
Contributed talk

05/2022 | **Unified Framework for Heterogeneous Treatment Effects Estimation**
American Causal Inference Conference 2022
Poster presentation

05/2022 | **Using Routinely Collected Data to Define the Optimal Timing to Initiate Renal Replacement Therapy in AKI Patients**
Belgian Society of Nephrology (BVN-SBN) Annual Meeting 2022
Mini-oral presentation (online)

05/2022 | **Using Routinely Collected Data to Define the Optimal Timing to Initiate Renal Replacement Therapy in AKI Patients**
59^{th} European Renal Association (ERA) Congress 2022
Mini-oral presentation (online)

04/2022 | **Does it Matter When We Start RRT in AKI? The Views of a Data Scientist**
27^{th} Belgian Dialysis Symposium 2022
Invited talk

08/2021 | **Counterfactual Prediction to Support Individualized Decisions on Treatment Initiation**
Joint Statistical Meetings (JSM)
Speed session presentation (online)

05/2021 | **On Estimation and Cross-validation of Dynamic Treatment Regimes with Competing Risks**
European Causal Inference Meeting (EuroCIM)
Contributed talk (online)

08/2020 | **Assessing the Optimal Time to Start Renal Replacement Therapy Using Dynamic Treatment Regimes**
Annual Conference of the International Society for Clinical Biostatistics
Contributed talk (online)

Computer Skills

R, Python, MATLAB

May 16, 2023