Paweł Morzywołek

Contact Details

University of Washington
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Education

09/2023 - present	**Postdoctoral Researcher** University of Washington, USA Focus areas: Causal Inference, Semiparametric Theory Research project: Statistical inference for infinite-dimensional parameters with application to study the efficacy of infectious disease prevention strategies. Advisor: Prof. Alex Luedtke
11/2019 - 08/2023	**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

05/2024 | **Inference on Variable Importance Measures for Heterogeneous Treatment Effects**
American Causal Inference Conference 2024
Poster presentation

07/2023 | **On a General Class of Orthogonal Learners for the Estimation of Heterogeneous Treatment Effects**
European Meeting of Statisticians
Contributed talk

12/2022 | **Sequential Counterfactual Prediction to Support Individualized Decisions on Treatment Initiation**
IMS International Conference on Statistics and Data Science
Contributed talk

12/2022 | **Sequential Counterfactual Prediction to Support Individualized Decisions on Treatment Initiation**
Lorentz Center Workshop "Counterfactual Prediction for Personalized Healthcare"
Invited talk

11/2022 | **Sequential Counterfactual Prediction to Support Individualized Decisions on Treatment Initiation**
MLinPL Conference
Contributed talk

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

June 26, 2024