

# Paweł Morzywołek

Postdoctoral researcher in statistics

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## EDUCATION

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- **University of Washington** United States  
Postdoctoral research in the Department of Statistics 2023 - Present  
Advisor: Prof. Alex Luedtke  
*Project title: Statistical inference for infinite-dimensional parameters with application to study the efficacy of infectious disease prevention strategies*
- **Ghent University** Belgium  
PhD in Statistical Data Analysis 2019 - 2023  
Advisors: Prof. Stijn Vansteelandt, Prof. Wim Van Biesen, Dr. Johan Steen  
*Thesis title: Causal inference methods to optimize clinical decision-making in treatment initiation based on routinely collected data*
- **ETH Zurich** Switzerland  
Master of Science in Mathematics 2013 - 2015  
Advisors: Prof. Didier Sornette, Prof. Peter Bühlmann, Dr. Vladimir Filimonov  
*Thesis title: Non-parametric methods for estimation of Hawkes process for high-frequency financial data*
- **University of Waterloo** Canada  
Study abroad in statistics and actuarial science 2014
- **ETH Zurich** Switzerland  
Bachelor of Science in Mathematics 2010 - 2014  
Advisor: Prof. Pierre Nolin  
*Thesis title: Random trees: Convergence of discrete random trees to the continuum random tree*

## WORK EXPERIENCE

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- **Ernst & Young** Switzerland  
Senior consultant 2018 - 2019  
Consultant 2016 - 2018  
*Participated in actuarial, risk management and data analytics projects for several insurance companies and banks in Switzerland and the United Kingdom.*
- **African Institute for Mathematical Sciences (AIMS)** South Africa  
Teaching assistant 2015  
*Supervised students in various courses in mathematics, physics and computer science.*
- **ETH Zurich** Switzerland  
Research assistant 2015  
*Participated in a research project on systemic risk in banking system in the Department of Humanities, Social and Political Sciences.*
- **ETH Zurich** Switzerland  
Research assistant 2014

*Participated in a research project on detecting extreme events in high-frequency financial data in the Department of Management, Technology and Economics.*

## HONORS AND AWARDS

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- **PIMS-Simons Postdoctoral Fellowship** PIMS  
For the academic year 2024-2025 2024-2025  
*Postdoctoral fellowship of the Pacific Institute for the Mathematical Sciences*
- **UW Data Science Postdoctoral Fellowship** University of Washington  
For the academic year 2024-2025 2024-2025  
*Postdoctoral fellowship of the eScience Institute at the University of Washington*

## PREPRINTS

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1. van Geloven, N., Keogh, R., van Amsterdam, W., Cinà, G., Krijthe, J., Peek, N., Luijken, K., Magliacane, S., **Morzywołek, P.**, van Ommen, T., Putter, H., Sperrin, M., Wang, J., Weir, D., and Didelez, V. (2023). The risks of risk assessment: causal blind spots when using prediction models for treatment decisions. *arXiv preprint*  
[Arxiv: 2402.17366](#)
2. Vansteelandt, S. and **Morzywołek, P.** (2023). Orthogonal prediction of counterfactual outcomes. *Under review at Journal of Causal Inference*  
[Arxiv: 2311.09423](#)
3. **Morzywołek, P.**, Decruyenaere, J., and Vansteelandt, S. (2023). On weighted orthogonal learners for heterogeneous treatment effects. *Minor revision submitted at Statistical Science*  
[Arxiv: 2303.12687](#)

## PUBLICATIONS

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1. Luijken, K., **Morzywołek, P.**, van Amsterdam, W., Cinà, G., Hoogland, J., Keogh, R., Krijthe, J., Magliacane, S., van Ommen, T., Peek, N., Putter, H., van Smeden, M., Sperrin, M., Wang, J., Weir, D., Didelez, V., and van Geloven, N. (2024). Risk-based decision making: Estimands for sequential prediction under interventions. *Biometrical Journal*, 66(8):1–11  
[DOI: 10.1002/bimj.70011](#), [Arxiv: 2311.17547](#)
2. Steen, J., **Morzywołek, P.**, Van Biesen, W., Decruyenaere, J., and Vansteelandt, S. (2023). Dealing with time-dependent exposures and confounding when defining and estimating attributable fractions—Revisiting estimands and estimators. *Statistics in Medicine*, 43(5):912–934  
[DOI: 10.1002/sim.9988](#), [Arxiv: 2011.04833](#)
3. **Morzywołek, P.**, Steen, J., Vansteelandt, S., Decruyenaere, J., Sterckx, S., and Van Biesen, W. (2022b). Timing of dialysis in acute kidney injury using routinely collected data and dynamic treatment regimes. *Critical Care*, 26(1):1–11  
[DOI: 10.1186/s13054-022-04252-1](#)
4. **Morzywołek, P.**, Steen, J., Van Biesen, W., Decruyenaere, J., and Vansteelandt, S. (2022a). On estimation and cross-validation of dynamic treatment regimes with competing risks. *Statistics in Medicine*, 41(26):5258–5275  
[DOI: 10.1002/sim.9568](#), [Arxiv: 2109.00396](#)

5. Vanmassenhove, J., Steen, J., Vansteelandt, S., **Morzywołek, P.**, Hoste, E., Decruyenaere, J., Benoit, D., and Van Biesen, W. (2021). The importance of the urinary output criterion for the detection and prognostic meaning of AKI. *Scientific Reports*, 11(1):1–9  
[DOI: 10.1038/s41598-021-90646-0](https://doi.org/10.1038/s41598-021-90646-0)

## TEACHING EXPERIENCE

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- **Causal Machine Learning** Ghent University  
 Teaching assistant Spring 2023  
*For master's degree & PhD students*
- **Causality and Missing Data** Ghent University  
 Teaching assistant Spring 2020/2021/2022  
*For master's degree & PhD students*
- **Algebra** African Institute for Mathematical Sciences (AIMS)  
 Teaching assistant Fall 2015  
*For master's degree students*
- **Probability and Statistics** AIMS  
 Teaching assistant Fall 2015  
*For master's degree students*
- **Problem Solving in Physics** AIMS  
 Teaching assistant Fall 2015  
*For master's degree students*
- **Finite-dimensional Quantum Mechanics** AIMS  
 Teaching assistant Fall 2015  
*For master's degree students*
- **Introduction to Scientific Computing in Python** AIMS  
 Teaching assistant Fall 2015  
*For master's degree students*

## TALKS AND POSTERS

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### Invited talks:

- **International Biometric Conference** Atlanta, USA  
 Orthogonal learners for prediction under hypothetical interventions, 2024  
 with application in acute kidney injury
- **Conference on Statistical Learning and Data Science** Newport Beach, USA  
 Inference on variable importance measures for heterogeneous treatment effects 2024
- **Biostatistics Seminar at the University of Copenhagen** (Remote)  
 Causal inference methods to optimize clinical decision-making in treatment 2024  
 initiation based on routinely collected data
- **Research Seminar at IDEAS NCBR** Warsaw, Poland  
 Causal inference methods to optimize clinical decision-making in treatment 2024  
 initiation based on routinely collected data

- **Lorentz Center Workshop** Leiden, Netherlands  
Sequential counterfactual prediction to support individualized decisions  
on treatment initiation 2022
- **Belgian Dialysis Symposium** Hasselt, Belgium  
Does it matter when we start RRT in AKI patients? The views of a data scientist 2022

#### Talks:

- **Bernoulli-IMS World Congress** Bochum, Germany  
Inference on variable importance measures for heterogeneous treatment effects 2024
- **Joint Statistical Meetings** Portland, USA  
Inference on variable importance measures for heterogeneous treatment effects 2024
- **European Meeting of Statisticians** Warsaw, Poland  
On a general class of orthogonal learners for the estimation of heterogeneous  
treatment effects 2023
- **IMS International Conference on Statistics and Data Science** Florence, Italy  
Sequential counterfactual prediction to support individualized decisions  
on treatment initiation 2022
- **MLinPL Conference** Warsaw, Poland  
Sequential counterfactual prediction to support individualized decisions  
on treatment initiation 2022
- **Conference of the International Society for Clinical Biostatistics** Newcastle, UK  
Sequential counterfactual prediction to support individualized decisions  
on treatment initiation 2022
- **Belgian Society of Nephrology Annual Meeting** (Remote)  
Using routinely collected data to define the optimal timing to initiate renal  
replacement therapy in AKI patients 2022
- **European Renal Association Congress** (Remote)  
Using routinely collected data to define the optimal timing to initiate renal  
replacement therapy in AKI patients 2022
- **Joint Statistical Meetings** (Remote)  
Counterfactual prediction to support individualized decisions on treatment initiation 2021
- **European Causal Inference Meeting** (Remote)  
On estimation and cross-validation of dynamic treatment regimes with competing risks 2021
- **Conference of the International Society for Clinical Biostatistics** (Remote)  
Assessing the optimal time to start renal replacement therapy using dynamic  
treatment regimes 2020

#### Posters:

- **American Causal Inference Conference** Seattle, USA  
Inference on variable importance measures for heterogeneous treatment effects 2024
- **American Causal Inference Conference** Berkeley, USA  
Unified framework for heterogeneous treatment effects estimation 2022