Paweł Morzywołek

Postdoctoral researcher in statistics

Website: https://pmorzywolek.github.io/

E-mail : pmorzywo@uw.edu

EDUCATION

- **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

- **Ernst & Young** — Switzerland
  Senior consultant — 2018 - 2019
  Consultant — 2016 - 2018
  Paticipated 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
  Paticipated 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

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

Honors and Awards

- **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

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. 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. (2023). Risk-based decision making: estimands for sequential prediction under interventions. *arXiv preprint*
   Arxiv: 2311.17547

3. Vansteelandt, S. and **Morzywołek, P.** (2023). Orthogonal prediction of counterfactual outcomes. *arXiv preprint*
   Arxiv: 2311.09423

4. **Morzywołek, P.**, Decruyenaere, J., and Vansteelandt, S. (2023). On weighted orthogonal learners for heterogeneous treatment effects. *arXiv preprint*
   Arxiv: 2303.12687

Publications

1. 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

2. **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

3. **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

4. 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

Teaching Experience

- **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

Invited talks:

- **Lorentz Center Workshop** — Leiden, Netherlands
  Sequential counterfactual prediction to support individualized decisions — 2022
  on treatment initiation

- **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