Stephan Bongers

Updated: August 19, 2024

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Current Position

2022–present | **Postdoc in Sequential Decision Making**
Delft University of Technology (NL)
Supported by Booking.com
Advisors: Frans A. Oliehoek and Matthijs T.J. Spaan

2020–2022 | **Postdoc in Causal Inference**
Delft University of Technology (NL)
Supported by Convergence Health & Technology
Advisors: Marco Loog and Jesse Krijthe

2015–2022 | **Ph.D. Candidate in Causal Inference**
University of Amsterdam (NL)
Thesis: Causal Modeling & Dynamical Systems: A New Perspective On Feedback
Advisors: Joris M. Mooij and Max Welling

Education

2011–2014 | **M.Sc. in Mathematics** (GPA 3.97/4.00)
Utrecht University (NL)
Thesis: Geometric quantization of symplectic and Poisson manifolds
Advisor: Urs Schreiber (Radboud University Nijmegen, NL)

2005–2011 | **B.Sc. Mathematics, B.Sc. Physics and Astronomy** (both GPA 3.29/4.00)
Utrecht University (NL)
Thesis: The Impact of Relative ITS-TPC Alignment and Calibration on High-Pt Physics in the ALICE Experiment
Advisor: Raimond Snellings (National Institute for Subatomic Physics, NL)

Publications and Preprints

Preprints/In preparation:

2024 S. Bongers, O. Zoeter, M.T.J. Spaan, and F.A. Oliehoek
Anytime-valid off-policy evaluation for reinforcement learning
Work in progress.

2024 D. Mambelli, S. Bongers, O. Zoeter, M.T.J. Spaan, and F.A. Oliehoek
When do off-policy and on-policy policy gradient methods align?
arXiv:2402.12034v1 (preprint).

2024 Y. Aslan, S. Bongers and F.A. Oliehoek
Use of sample-splitting and cross-fitting techniques to mitigate the risks of double-dipping in behaviour-agnostic reinforcement learning
Submitted to BNAIC/BeNeLearn 2024.

2024 C. Brita, S. Bongers and F.A. Oliehoek
SimuDICE: Offline Policy Optimization Through Iterative World Model Updates and DICE Estimation
Submitted to BNAIC/BeNeLearn 2024.

2023 S. Bongers, T. Blom and J.M. Mooij
Causal Modeling of Dynamical Systems
arXiv:1803.08784v4 (preprint). *Submitted to JMLR.*

Peer-reviewed papers:

2021 S. Bongers, P. Forré, J. Peters and J.M. Mooij
Foundations of Structural Causal Models with Cycles and Latent Variables
Annals of Statistics 49.5, pp. 2885–2915.

2019 T. Blom, S. Bongers and J.M. Mooij
Beyond Structural Causal Models: Causal Constraints Models
UAI 2019. *Plenary Talk.*

2018 S. Magliacane, T. van Ommen, T. Claassen, S. Bongers, P. Versteeg and J.M. Mooij
Domain Adaptation by Using Causal Inference to Predict Invariant Conditional Distributions
NeurIPS 2018.

2018 P.K. Rubenstein, S. Bongers, J.M. Mooij and B. Schölkopf
From Deterministic ODEs to Dynamic Structural Causal Models
UAI 2018.

2017 P.K. Rubenstein*, S. Weichwald*, S. Bongers, J.M. Mooij, D. Janzing, M. Grosse-Wentrup and B. Schölkopf, *equal contribution
Causal Consistency of Structural Equation Models
UAI 2017. *Plenary Talk.*

For a full list of my publications see my google scholar 🎓.

Professional Experience

2022–present **Booking.com** (NL)
Postdoctoral Researcher
Mentor: Onno Zoeter

2020–2022 **Convergence Health & Technology** (NL)
Postdoctoral Researcher
Mentor: Stefan Klein (Erasmus MC)

2014–2015 **Accenture** (NL)
Data Analyst
Mentor: Elena Pupazan

Presentations and Invited Talks

2022	**CMStatistics 2022 (ERCIM 2022)**, *Foundations of Structural Causal Models with Cycles and Latent Variables (Talk)*
2022	**Amazon Research**, *Causal Modeling of Dynamical Systems (Talk)*
2018	**7th Causal Inference Workshop (UAI 2018)**, *Bridging the Gap between Random Differential Equations and Structural Causal Models (Poster)*
2016	**What if? Workshop (NIPS 2016)**, *Curing the Curse of Non-Recursiveness in Structural Causal Models (Poster)*
2016	**CMStatistics 2016 (ERCIM 2016)**, *Marginalization and Reduction of Structural Causal Models (Talk)*

Workshops and Summer Schools

2018	**Deep Learning and Reinforcement Learning Summer School (CIFAR)**, Toronto, CA
2017	**Machine Learning Summer School**, Tübingen, DE, *Poster Presentation*
2015	**Bioinformatics and Systems Biology Research School**, *Quantitative and Predictive Modelling*, Wageningen, NL
2011	**Villa de Leyva Summer School**, *Geometric, algebraic and topological methods for quantum field theory*, Villa de Leyva, CO
2010	**CERN Summer School**, Geneva, CH

Scholarships, Grants and Awards

2015	First prize with UvA team in the CRM Causal Inference Challenge
2011	International Center for Pure and Applied Mathematics (CIMPA) grant
2011	A.F. Monnafonds grant
2010	CERN Summer Student scholarship

Teaching Activities

Teaching assistant (TA):

2024	Research Project (Bachelor CS, Delft University of Technology)
2023	Intelligent Decision Making Project (Master CS, Delft University of Technology)
2023	Machine Learning 2 (Master CS, Delft University of Technology)
2022	Research Project (Bachelor CS, Delft University of Technology)
2022	Machine Learning 2 (Master CS, Delft University of Technology)
2017–2018	Machine Learning 2 (Master AI, University of Amsterdam)
2016	Mathematical Principles of Pattern Recognition (Bachelor AI, University of Amsterdam)
2015	Machine Learning 1 (Master AI, University of Amsterdam)
2013	Advanced Mechanics (Bachelor Physics, Utrecht University)
2011–2013	Molecular Modelling and Mathematics (Bachelor Chemistry, Utrecht University)

Service

Reviewer: Journal of Machine Learning Research, International Journal of Approximate Reasoning, Conference on Uncertainty in Artificial Intelligence, Conference on Neural Information Processing Systems, BNAIC/BeNeLearn

Volunteer:
- Volunteer in the pre-screening of PhD students for the ELLIS PhD & Postdoc Program
- Organizer of the Causality Reading group at the Delft University of Technology
- UAI 2015 (Amsterdam) conference volunteer

Skills

Programming/scripting languages: Python, R, C++, bash
Deep learning frameworks: PyTorch, Pyro
Favorite tools: Vim, tmux, zsh, git and neovim

References

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