Nikolaj Thams

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Nationality/Citizenship: Danish

Education

University of Copenhagen	**Copenhagen, Denmark**
PhD in Statistics, with Prof. Jonas Peters	*Sep. 2019 – Aug 2022*

Title: Using causality for distributional robustness
Spent semesters at MIT (2022)

University of Copenhagen	**Copenhagen, Denmark**
Master of Science, Statistics (GPA 11.6 out of 12.0)	*Sep. 2017 – Aug 2019*

Thesis: Causal structure learning in multivariate point processes, with *Prof. Niels Richard Hansen*
Spent semester at ETH Zürich (2017)
Interests*: Machine Learning, Stochastic Processes, Graphical Models*

University of Copenhagen	**Copenhagen, Denmark**
Bachelor of Science, Mathematical Economics (GPA 12.0 out of 12.0)	*Aug. 2016 – March 2017*

Thesis: Weak convergence in abstract spaces, with *Prof. Thomas Mikosch*
Interests*: Micro-/Macroeconomy, Numerical Analysis, Game Theory, Statistics, Financial Models*

University of Copenhagen	**Copenhagen, Denmark**
Bachelor of Science, Mathematics (GPA 11.7 out of 12.0)	*Aug. 2013 – July 2016*

Thesis: The lower K-groups of a ring with *Henrik Holm*
Spent semesters at University of Aarhus (2013-2014) and University of Hong Kong (2016)
Interests*: Probability Theory, Analysis, Topology, Algebra*

Haderslev Katedralskole	**Haderslev, Denmark**
Math A, Physics A, Chemistry A (GPA 11.7 out of 12.0)	*Aug. 2009 – July 2012*

SRP: *The Laplace transform and its applications to regularized harmonic fluctuations*

Work experience (non-teaching)

McKinsey & Co.	**Copenhagen, Denmark**
Intern	*May 2018 – Jun 2018*

Participated in a program of optimizing the client processes.

Swiss Re	**Copenhagen, Denmark and Zurich, Switzerland**
Student Actuary in Structured Solutions	*Aug. 2016 – Feb. 2018*

Priced complex structures on insurance portfolios using Monte Carlo methods (in Java).

Danish Agency for Culture	**Copenhagen, Denmark**
Student in Danmarks Elektroniske Fag- og Forskningsbibliotek	*Jan. 2015 – Dec. 2015*

Collected and analyzed data on usage of scientific publications by Danish universities.

Teaching experience

University of Copenhagen,	**Copenhagen, Denmark**
Teaching assistant	*Aug. 2016 – current*

Taught courses Analysis 2 (2016, 2018), Measure- and Integration Theory (2016, 2018), Analysis 0 (2018, 2019),
Optimization in Data Science (2019), Statistics A (2020), Models for Complex Systems (2021)

Competitions and awards

Causality 4 Climate, NeurIPS competition	**Copenhagen, Denmark**
Winner	*Nov 2019*

Winner of the NeurIPS 2019 competition on using causal structure learning for earth system science time series data.
With Lasse Petersen, Martin Jakobsen, Sebastian Weichwald, Phillip Mogensen and Gherado Varando.

Business Analytics Challenge	**Copenhagen, Denmark**
Winner	*Jul 2017*

Winner of BAC, a competition for using machine learning models to predicting bankruptcy in businesses. Our winning
solution used accounting data from ~630.000 annual reports. Organized by Danske Bank, Microsoft and KMD.
With Sebastian Pedersen, Lasse Petersen and Simon Harmat.

International Physics Olympiad
Talinn, Estonia

Honourable mentions — *Jul 2012*

Participated in national finales, training with top 12, was selected for the top 5 team, representing Denmark at the International Physics Olympiad.

Nordic Mathematics Olympiad
Copenhagen, Denmark

Participant — *Mar 2012*

Participated in national finales, training for top 20 and Nordic finale. Withdrew voluntarily after Nordic finale due to '1--competition-only' rule.

Danish Chemistry Olympiad
Copenhagen, Denmark

Participant — *Mar 2012*

Participated in national finales, and was selected for training with top 12, but withdrew due to '1-competition-only'-rule.

Academic work

Evaluating Robustness to Dataset Shift via Parametric Robustness Sets
2022

Under review

Nikolaj Thams*, Michael Oberst*, and *David Sontag*

Causal Discovery for Heterogeneous Time Series Data
2022

Under review

Nikolaj Thams, Rikke Nielsen, Sebastian Weichwald and *Jonas Peters*

Invariant Ancestry Search
2022

ICML 2022

Phillip Mogensen, Nikolaj Thams and *Jonas Peters*

Local Independence Testing for Point Processes
2021

Under review

Nikolaj Thams and *Niels Richard Hansen*

Testing under Distributional Shifts
2021

Under review

Nikolaj Thams, Sorawit Saengkyongam, Niklas Pfister and *Jonas Peters*

Invariant Policy Learning: A Causal Perspective
2021

Under review

Sorawit Saengkyongam, Nikolaj Thams, Jonas Peters and *Niklas Pfister*

Regularizing towards Causal Invariance
2021

ICML 2021

Michael Oberst, Nikolaj Thams, Jonas Peters and *David Sontag*

Causal structure learning from time series: Large regression coefficients may predict causal links better in practice than small p-values
2020

NeurIPS 2019 Competition and Demonstration Track. PMLR, 2020

Sebastian Weichwald, Martin Jakobsen, Phillip Mogensen, Lasse Petersen, Nikolaj Thams and *Gherado Varando*

Academic service

- *Reviewing for UAI (2021), AISTATS (2021), Journal of Mathematical Psychology, CLeaR (2021, Conference on Causal Learning and Reasoning)*
- *Workflow Chair for UAI (2020).* Organize webpage and perform practical duties.
- *SCIENCE PhD committee, University of Copenhagen (2019-).* On the board of the PhD school, which has the responsibility regulate and assure the quality of the education of the ~1100 PhD students at the science faculty.
- *Head of Student's Council at MATH, University of Copenhagen* (2017-2019). In charge of career day, 'course videos', exchange events and several other tasks.
- *Founder and organizer of Statistical Study Trip to London and Oxford (2018).* Applied for funding, made all arrangements with universities and companies.

Other skills

Language skills
Fluent in Danish and English, proficient in German.

Programming skills
Coding skills in Python, Java, VBA and R.