

# Nikolaj Thams

Phone no. +45 25 15 06 29 | E-mail: [nikolajthams@gmail.com](mailto:nikolajthams@gmail.com)

[nikolajthams.github.io](https://nikolajthams.github.io)

Nationality/Citizenship: Danish



## Education

---

### University of Copenhagen

*PhD in Statistics, with Prof. Jonas Peters*

Title: Using causality for distributional robustness

Semester to be spent at MIT (2022)

Copenhagen, Denmark

Sep. 2019 – Aug 2022

### University of Copenhagen

*Master of Science, Statistics (GPA 11.6 out of 12.0)*

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

Copenhagen, Denmark

Sep. 2017 – Aug 2019

### University of Copenhagen

*Bachelor of Science, Mathematical Economics (GPA 12.0 out of 12.0)*

Thesis: Weak convergence in abstract spaces, with Prof. Thomas Mikosch

Interests: Micro-/Macroeconomy, Numerical Analysis, Game Theory, Statistics, Financial Models

Copenhagen, Denmark

Aug. 2016 – March 2017

### University of Copenhagen

*Bachelor of Science, Mathematics (GPA 11.7 out of 12.0)*

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

Copenhagen, Denmark

Aug. 2013 – July 2016

### Haderslev Katedralskole

*Math A, Physics A, Chemistry A (GPA 11.7 out of 12.0)*

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

Haderslev, Denmark

Aug. 2009 – July 2012

## Work experience (non-teaching)

---

### McKinsey & Co.

*Intern*

Participated in a program of optimizing the client processes.

Copenhagen, Denmark

May 2018 – Jun 2018

### Swiss Re

*Student Actuary in Structured Solutions*

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

Copenhagen, Denmark and Zurich, Switzerland

Aug. 2016 – Feb. 2018

### Danish Agency for Culture

*Student in Danmarks Elektroniske Fag- og Forskningsbibliotek*

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

Copenhagen, Denmark

Jan. 2015 – Dec. 2015

## Teaching experience

---

### University of Copenhagen,

*Teaching assistant*

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)

Copenhagen, Denmark

Aug. 2016 – current

## Competitions and awards

---

### Causality 4 Climate, NeurIPS competition

*Winner*

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 Gherardo Varando.

Copenhagen, Denmark

Nov 2019

### Business Analytics Challenge

*Winner*

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.

Copenhagen, Denmark

Jul 2017

**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**

---

**Invariant Ancestry Search**

2022

*Under review*

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 Gherardo Varando

**Current research projects**

---

**Causal discovery for heterogeneous time series data**

[Nikolaj Thams](#), Rikke Nielsen, Sebastian Weichwald and Jonas Peters

**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.