

# Thomas Kleine Buening

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## Education

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### University of Oslo

PhD in Computer Science

Oslo, Norway

Jan 2021 - Feb 2024

- Topics: Reinforcement Learning, Game Theory, Algorithmic Fairness
- Advised by Christos Dimitrakakis
- Thesis: Learning in the Presence of Cooperative, Adversarial and Strategic Agents

### University of Münster

MSc in Mathematics

Münster, Germany

Oct 2018 - Sept 2020

- Graduated with Distinction. Grade: 1.0 (equivalent GPA: 4.0/4.0)
- Topics: Probability Theory, Stochastic Processes, Stochastic Analysis
- Thesis: Branching in Random Environment and Linear Fractional Distributions

### University of British Columbia

Visiting Student in the Probability Group

Vancouver, Canada

Jun 2019 - Dec 2019

- GPA: 94/100
- Topics: Stochastic Analysis
- Hosted by Edwin Perkins

### University of Münster

BSc in Mathematics

Münster, Germany

Oct 2014 - Sept 2017

- Grade: 1.9 (equivalent GPA: 3.1/4.0)
- Minor in Computer Science
- Thesis: Optimal Stopping in Discrete Time

### Selected Coursework (BSc, MSc, PhD):

linear algebra, complex analysis, functional analysis, probability theory I-III, mathematical statistics, stochastic analysis, computability theory

## Research Experience

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### The Alan Turing Institute

Postdoctoral Research Associate

London, United Kingdom

Mar 2024 - current

- Advised by Marta Kwiatkowska and Lukasz Szpruch
- Topics: Reinforcement Learning, Algorithmic Game Theory, Robustness and Certifiability

### University of Oxford

Associate Member of the Department of Computer Science

Oxford, United Kingdom

Mar 2024 - current

- Advised by Marta Kwiatkowska and Lukasz Szpruch
- Topics: Reinforcement Learning, Algorithmic Game Theory, Robustness and Certifiability

## Teaching Experience

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### University of Oslo

Teaching Assistant

Oslo, Norway

Aug 2022 - Jul 2023

- TA for "Reinforcement Learning and Decision Making under Uncertainty" (undergrad/grad)

### University of Münster

Teaching Assistant

Münster, Germany

Oct 2018 - Sept 2020

- TA for "Introduction to Stochastics" (undergrad)
- TA for "Probability Theory I" (undergrad)
- TA for "Mathematical Statistics" (undergrad)

### Qingdao University of Science and Technology

Teaching Assistant at the German-Chinese Campus

Qingdao, China

Mar 2018 - Jul 2018

- Taught refresher course on "Ordinary Differential Equations" (undergrad)

## Work Experience

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### Deloitte Consulting

Intern

- ML and AI for business applications (forecasting, trend analysis, ...)
- Prototyping of crowd-sourcing platform

Hamburg, Germany

Oct 2017 - Feb 2018

### zeb

Student Assistant and Intern

- Automated data quality tests
- Model validation

Münster, Germany

Jan 2016 - Sep 2017

## Skills

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**Programming** Python (PyTorch, NumPy, Scikit-learn), SQL

## Languages

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**German** Native

**English** Fluent

**Chinese** Conversational

## Publications and Preprints

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### CONFERENCE PROCEEDINGS

Bandits Meet Mechanism Design to Combat Clickbait in Online Recommendation

Thomas Kleine Buening, Aadirupa Saha, Christos Dimitrakakis, Haifeng Xu  
*International Conference on Learning Representations (ICLR)*, 2024, [spotlight](#), [pdf]

Minimax-Bayes Reinforcement Learning

Thomas Kleine Buening, Christos Dimitrakakis, Hannes Eriksson, Divya Grover, Emilio Jorge  
*International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2023, [pdf]

ANACONDA: An Improved Dynamic Regret Algorithm for Adaptive Non-Stationary Dueling Bandits

Thomas Kleine Buening, Aadirupa Saha  
*International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2023, [pdf]

Interactive Inverse Reinforcement Learning for Cooperative Games

Thomas Kleine Buening, Anne-Marie George, Christos Dimitrakakis  
*International Conference on Machine Learning (ICML)*, 2022, [pdf]  
[Best Paper Award at the Cooperative AI Workshop at NeurIPS 2021](#)

On Meritocracy in Optimal Set Selection

Thomas Kleine Buening, Meirav Segal, Debabrota Basu, Anne-Marie George, Christos Dimitrakakis  
*Equity and Access in Algorithms, Mechanisms, and Optimization (EAAMO)*, 2022, [pdf]  
[Best Student Paper Award](#)

### PREPRINTS / WORKSHOP PAPER

Environment Design for Inverse Reinforcement Learning

Thomas Kleine Buening, Christos Dimitrakakis  
*Human in the Loop Learning Workshop (NeurIPS 2022)*, [pdf]