Thomas Kleine Buening

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Education

University of Oslo *Oslo, Norway*

PhD in Computer Science *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 *Münster, Germany*

MSc in Mathematics *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 *Vancouver, Canada*

Visiting Student in the Probability Group *Jun 2019 - Dec 2019*

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

University of Münster *Münster, Germany*

BSc in Mathematics *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

The Alan Turing Institute *London, United Kingdom*

Postdoctoral Research Associate *Mar 2024 - current*

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

University of Oxford *Oxford, United Kingdom*

Associate Member of the Department of Computer Science *Mar 2024 - current*

- Affiliation: Trinity College (MCR)
- Topics: Reinforcement Learning, Algorithmic Game Theory, Robustness and Certifiability

Teaching Experience

University of Oslo *Oslo, Norway*

Teaching Assistant *Aug 2022 - Jul 2023*

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

University of Münster *Münster, Germany*

Teaching Assistant *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 *Qingdao, China*

Teaching Assistant at the German-Chinese Campus *Mar 2018 - Jul 2018*

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

Work Experience

Deloitte Consulting   *Hamburg, Germany*
Intern   *Oct 2017 - Feb 2018*
- ML and AI for business applications (forecasting, trend analysis, ...)
- Prototyping of crowd-sourcing platform

zeb   *Münster, Germany*
Student Assistant and Intern   *Jan 2016 - Sep 2017*
- Automated data quality tests
- Model validation

Skills

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

Languages

German   Native
English   Fluent
Chinese   Conversational

Publications and Preprints

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), spotlight, 2024, [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]