Thomas Kleine Buening

7 Parks Road, Oxford, United Kingdom

🏠 thomasklbg.github.io | 🎓 Google Scholar

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

University of Oxford   *Oxford, United Kingdom*
Associate Member   *Mar 2024 - current*
- College: Trinity College (MCR)
- Topics: Reinforcement Learning, Algorithmic Game Theory

University of British Columbia   *Vancouver, Canada*
Visiting Student in the Probability Group   *Jun 2019 - Dec 2019*
- Hosted by Edwin Perkins
- Topics: Stochastic Calculus
- GPA: 94/100

Education

University of Oslo   *Oslo, Norway*
PhD in Computer Science   *Jan 2021 - Feb 2024*
- Topics: Machine Learning, Reinforcement Learning
- Advised by Christos Dimitrakakis
- Supported by the Norwegian Research Council
- Thesis: Learning in the Presence of Cooperative, Adversarial and Strategic Agents

University of Münster   *Münster, Germany*
MSc in Mathematics   *Oct 2018 - Sept 2020*
- Grade: 1.0 (equiv. GPA: 4.0/4.0) with Distinction
- Topics: Probability Theory, Stochastic Processes, Stochastic Calculus
- Thesis: Branching in Random Environment and Linear Fractional Distributions

University of Münster   *Münster, Germany*
BSc in Mathematics   *Oct 2014 - Sept 2017*
- Grade: 1.9 (equiv. GPA: 3.1/4.0)
- Minor in Computer Science
- Thesis: Optimal Stopping in Discrete Time

Publications and Preprints

Strategyproof Reinforcement Learning from Human Feedback
Thomas Kleine Buening, Jiarui Gan, Debmalya Mandal, Marta Kwiatkowska
preprint, 2025, [pdf]

A Unifying Framework for Causal Imitation Learning with Hidden Confounders
Daqian Shao, **Thomas Kleine Buening**, Marta Kwiatkowska
SCSL Workshop at ICLR 2025, 2025, [pdf]

A Minimax Approach to Ad Hoc Teamwork
Villin Victor, **Thomas Kleine Buening**, Christos Dimitrakakis, Haifeng Xu
International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2025, [pdf]

Strategic Linear Contextual Bandits
Thomas Kleine Buening, Aadirupa Saha, Christos Dimitrakakis, Haifeng Xu
Conference on Neural Information Processing Systems (NeurIPS), 2024, [pdf]

Environment Design for Inverse Reinforcement Learning
Thomas Kleine Buening*, Villin Victor*, Christos Dimitrakakis
International Conference on Machine Learning (ICML), Oral Presentation, 2024, [pdf]

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 Presentation, 2024, [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]

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]

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

Teaching Experience

University of Edinburgh   *Edinburgh, UK*
Guest Lecturer   *February 2025*
• Introduction to Stochastic and Adversarial Bandits

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 Probability Theory" (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*
• TA for "Ordinary Differential Equations" (undergrad)

Other Work Experience

The Garage (by Deloitte)   *Hamburg, Germany*
Intern   *Oct 2017 - Feb 2018*
• ML and AI for business applications
• Prototyping of crowd-sourcing platform

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

Academic Service and Outreach

Workshop **Models of Human Feedback for AI Alignment (ICML 2024)**, Main Organizer & Moderator
Workshop **Beyond the Symbols vs. Signals Debate, 2024 (The Royal Society)**, Rapporteur
Reviewing ICML 2022-2024, NeurIPS 2022-2024, ICLR 2023-2025, AISTATS 2023

Awards

2022 **Best Paper Award with Student Presenter**, EAAMO 2022   *Washington DC*
2021 **Best Paper Award**, Cooperative AI Workshop at NeurIPS 2021   *Virtual*
2019 **DAAD Scholarship**, Research Visit Scholarship   *Vancouver*

Invited Talks

2025	**The Role of Incentives in AI Alignment**, ML Seminar, Czech Academy of Sciences	*Prague*
2024	**Strategic Interactive Decision-Making**, CS Department, University of Chicago	*Chicago*
2024	**Minimax-Bayes Reinforcement Learning**, QAVAS, University of Oxford	*Oxford*

Programming

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

Languages

German (Native)   **English** (Fluent)   **Chinese (Mandarin)** (Conversational)