

Matteo Bortoleutto

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ABOUT

I am a last-year PhD in Computer Science, working on AI and social understanding. I design, train, and evaluate AI systems that understand others' preferences, goals, beliefs, and intentions – with the goal of improving interactions between humans and AI.

EDUCATION

University of Stuttgart, Germany Ph.D. in Computer Science	2022 - Present
Advisor: Andreas Bulling	
University of Padua, Italy M.Sc. in Physics of Data, <i>cum laude</i>	2019 - 2021
Advisor: Marco Baiesi	
University of Padua, Italy B.Sc. in Physics	2016 - 2019
Advisor: Samir Suweis	

RESEARCH & WORK EXPERIENCE

University of Stuttgart, Stuttgart, Germany	2022 - Present
<i>Scientific Researcher</i> – Conducted research at the CAI group, with a focus on Theory of Mind in AI and large foundation models. Published 9 papers at top AI venues (AAAI, ACL, EMNLP, TMLR, ECAI), plus 2 preprints currently under review.	
Johns Hopkins University, Baltimore, USA	2025
<i>Visiting Graduate Scholar</i> – Conducted research at the SCAI Lab, leading a project with collaborators from JHU, Harvard, MIT, and PKU. Focus: Bayesian Inverse Planning, Large Vision/Language and Reasoning models.	
Piratech, Kingston Upon Thames, London, England (Remote)	2021
<i>Intern</i> – Joined the project “Urban Big Data for Economic Development” in collaboration with the University of Padova. Worked in a team to create and deploy AWS infrastructures “as code” via Pulumi.	

PEER-REVIEWED PUBLICATIONS

1. M. Bortoleutto, C. Ruhdorfer, A. Bulling. “ToM-SSI: Evaluating Theory of Mind in Situated Social Interactions.” **EMNLP 2025**.
2. M. Bortoleutto, C. Ruhdorfer, L. Shi, A. Bulling. “Brittle Minds, Fixable Activations: Understanding Belief Representations in Language Models.” **EMNLP 2025 Findings and ICML 2024 Workshop on Mechanistic Interpretability**.
3. C. Ruhdorfer, M. Bortoleutto, A. Penzkofer, A. Bulling. “The Overcooked Generalisation Challenge.” **TMLR**, 2025.
4. C. Ruhdorfer, M. Bortoleutto, A. Bulling. “The Yokai Learning Environment: Tracking Beliefs Over Space and Time.” **IJCAI 2025 Worshop on Theory of Mind**. (Oral)
5. M. Bortoleutto, C. Ruhdorfer, L. Shi, A. Bulling. “Explicit Modelling of Theory of Mind for Belief Prediction in Nonverbal Social Interactions.” **ECAI 2024**. (Oral)
6. M. Bortoleutto, C. Ruhdorfer, A. Abdessaiid, L. Shi, A. Bulling. “Limits of Theory of Mind Modelling in Dialogue-Based Collaborative Plan Acquisition.” **ACL 2024**.
7. M. Bortoleutto, L. Shi, A. Bulling. “Neural Reasoning About Agents’ Goals, Preferences, and Actions.” **AAAI 2024**.
8. E. Sood, L. Shi, M. Bortoleutto, Y. Wang, P. Müller, A. Bulling. “Improving neural saliency prediction with a cognitive model of human visual attention.” **CogSci 2023**.
9. G. Zhang, M. Bortoleutto, Z. Hu, L. Shi, M. Bâce, A. Bulling. “Exploring Natural Language Processing Methods for Interactive Behaviour Modelling.” **INTERACT 2023**.  **Best Student Paper Nomination**

PREPRINTS

1. M. Bortolotto, Y. Zhou, L. Ying, T. Shu, A. Bulling. "ProToM: Promoting Prosocial Behaviour via Theory of Mind-Informed Feedback." arXiv:2509.05091.
2. C. Ruhdorfer, M. Bortolotto, V Oei, A Penzkofer, A. Bulling. "Unsupervised Partner Design Enables Robust Ad-hoc Teamwork." arXiv:2508.06336.

ACADEMIC SERVICES

Reviewer: CHI'24, CHI'25, ACL ARR'25, TOCHI, UIST'25, AAAI'26

Evaluator: ELLIS PhD Program, IMPRS-IS PhD Program

Mentoring: Supervised 9 B.Sc/M.Sc theses, including two award-winning (C. Ruhdorfer, J.P. Thewes)

Teaching: "Machine Perception and Learning" (teaching assistant/course organiser), "Computational Theory of Mind and Cognition" (course organiser & lecturer)

Student Volunteer: AAAI'24, ACL'24, EMNLP'25

AWARDS

Volunteer Scholarship: AAAI'24, ACL'24, EMNLP'25

Best Student Paper Nomination, INTERACT 2023

Winner Startup, StartCup Veneto, TooBusy

2021

Research Grant, University of Padua, "Urban Big Data for Economic Development"

2021

EVENTS AND PRESENTATIONS

EMNLP 2025 poster presentations	2025
Invited talk at the SCAI Lab, Johns Hopkins University	2025
ECAI 2024 oral presentation	2024
ACL 2024 poster presentation	2024
ICML 2024 poster presentation	2024
ELLIS CoGenAI Summer School (Aalto University, Finland)	2024
ELLIS Unit Stuttgart Summer Symposium	2024
AAAI 2024 poster presentation	2024
ELLIS Unit Stuttgart Kickoff Symposium	2023
Dagstuhl Seminar on Anticipatory Human-Machine Interaction	2022

MISCELLANEOUS

Nationality: Italian

Languages: English (fluent), Italian (native), Spanish (basic), German (basic)

Programming: Python, PyTorch, Huggingface, NNsight, Julia

Software & Tools: Linux, MacOS, Git, L^AT_EX, Microsoft Suite

Hobbies and activities: Watercolour painting, guitar, running