

Matteo Bortoletto

Ph.D. Student at the University of Stuttgart

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EDUCATION

Johns Hopkins University, USA Visiting Graduate Scholar Advisor: Tianmin Shu	2025
University of Stuttgart, Germany Ph.D. in Computer Science Advisor: Andreas Bulling	2022 - Present
University of Padua, Italy M.Sc. in Physics of Data, <i>cum laude</i> Advisor: Marco Baiesi	2019 - 2021
University of Padua, Italy B.Sc. in Physics Advisor: Samir Suweis	2016 - 2019

PEER-REVIEWED PUBLICATIONS

Matteo Bortoletto, Constantin Ruhdorfer, Andreas Bulling. "ToM-SSI: Evaluating Theory of Mind in Situated Social Interactions" In *Proceedings of the 2025 Conference on Empirical Methods in Natural Language Processing (EMNLP)*, 2025.

Matteo Bortoletto, Constantin Ruhdorfer, Lei Shi, Andreas Bulling. "Brittle Minds, Fixable Activations: Understanding Belief Representations in Language Models" In *Findings of the Association for Computational Linguistics: EMNLP 2025 and ICML Workshop on Mechanistic Interpretability*, 2024.

Constantin Ruhdorfer, **Matteo Bortoletto**, Anna Penzkofer, Andreas Bulling. "The Overcooked Generalisation Challenge." *Transactions on Machine Learning Research (TMLR)*, 2025.

Constantin Ruhdorfer, **Matteo Bortoletto**, Andreas Bulling. "The Yokai Learning Environment: Tracking Beliefs Over Space and Time" In *IJCAI Workshop on Theory of Mind*, 2025. (Oral)

Matteo Bortoletto, Constantin Ruhdorfer, Lei Shi, Andreas Bulling. "Explicit Modelling of Theory of Mind for Belief Prediction in Nonverbal Social Interactions." In *Proceedings of the 27th European Conference on Artificial Intelligence (ECAI)*, 2024. (Oral)

Matteo Bortoletto, Constantin Ruhdorfer, Adnen Abdessaied, Lei Shi, Andreas Bulling. "Limits of Theory of Mind Modelling in Dialogue-Based Collaborative Plan Acquisition." In *Proceedings of the 62nd Annual Meeting of the Association for Computational Linguistics (ACL)*, 2024.

Matteo Bortoletto, Lei Shi, Andreas Bulling. "Neural Reasoning About Agents' Goals, Preferences, and Actions." In *Proceedings of the 38th AAAI Conference on Artificial Intelligence (AAAI)*, 2024.

Ekta Sood, Lei Shi, **Matteo Bortoletto**, Yao Wang, Philip Müller, Andreas Bulling. "Improving neural saliency prediction with a cognitive model of human visual attention." In *Proceedings of the Annual Meeting of the Cognitive Science Society (CogSci)*, 2023.

Guanhua Zhang, **Matteo Bortoletto**, Zhiming Hu, Lei Shi, Mihai Băce, Andreas Bulling. "Exploring Natural Language Processing Methods for Interactive Behaviour Modelling." In *Proceedings of Conference on Human-Computer Interaction (INTERACT)*, 2023. 🏆 Best Student Paper Nomination

PREPRINTS

Matteo Bortoletto, Yichao Zhou, Lance Ying, Tianmin Shu, Andreas Bulling. "ProToM: Promoting Prosocial Behaviour via Theory of Mind-Informed Feedback." *arXiv:2509.05091*, 2025.

Constantin Ruhdorfer, **Matteo Bortoletto**, Victor Oei, Anna Penzkofer, Andreas Bulling. "Unsupervised Partner Design Enables Robust Ad-hoc Teamwork." *arXiv:2508.06336*, 2025.

TEACHING EXPERIENCE

Course Organiser , Machine Perception and Learning	WS 2024
Course Organiser and Lecturer , Computational Theory of Mind and Cognition	SS 2024
Teaching Assistant , Machine Perception and Learning	SS 2022, WS 2022, WS 2023

MENTORING

Levi Otterbach, B.Sc. Thesis: “Neural Reasoning with Cognitively-Inspired Representations”
Jonas Allali, M.Sc. Thesis: “Probing for Theory of Mind in the Multi-Agent Cooperation Game Yokai”
Jann-Philipp Thewes, M.Sc. Thesis: “Multimodal LLM for Theory of Mind Modelling in Collaborative Tasks”
Ruben Werbke, B.Sc. Thesis: “Inferring Other Agents’ Goal in Collaborative Environments Using Graphs”
Constantin Ruhdorder, M.Sc. Thesis: “Into the Minds of the Chefs: Using Theory of Mind for Robust Collaboration with Humans in Overcooked” 🏆 Rul Gunzenhäuser Award
John Pravin Arockiasamy, M.Sc. Research Project: “Transformer Based Architecture for Belief Prediction in Object-Context Scenarios”
Michael Erdemann, M.Sc. Thesis: “Recreating False-Belief Tests as Visual Question Answering Tasks”

WORK EXPERIENCE

University of Padua , Research Fellow	2021
Piratech , Intern	2021

SERVICES

Reviewer: CHI’24, CHI’25, ACL ARR’25, TOCHI, UIST’25, AAI’26
Student Volunteer: AAI’24, ACL’24

AWARDS

Volunteer Scholarship AAI’24, ACL’24
Best Student Paper Nomination INTERACT 2023
StartCup Veneto Start up competition winner, TooBusy 2021
Research Grant, University of Padua, “Urban Big Data for Economic Development” 2021

EVENTS AND PRESENTATIONS

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

SKILLS

Languages: English (fully proficient), 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, playing the guitar, swimming, bodyweight exercise