Matteo Bortoletto

Ph.D. Student at the University of Stuttgart

matteo.bortoletto@vis.uni-stuttgart.de ◇ GitHub ◇ Website ◇ LinkedIn

EDUCATION

Johns Hopkins University, USA Visiting Graduate Scholar   *2025*
Advisor: Tianmin Shu

University of Stuttgart, Germany Ph.D. in Computer Science   *2022 - Present*
Advisor: Andreas Bulling

University of Padua, Italy M.Sc. in Physics of Data, *cum laude*   *2019 - 2021*
Advisor: Marco Baiesi

University of Padua, Italy B.Sc. in Physics   *2016 - 2019*
Advisor: Samir Suweis

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 Worshop 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 Bâce, 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

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, AAAI'26
Student Volunteer: AAAI'24, ACL'24

AWARDS

Volunteer Scholarship AAAI'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, LaTeX, Microsoft Suite
Hobbies and activities: Watercolour painting, playing the guitar, swimming, bodyweight exercise