Matteo Bortoletto

Ph.D. Student at the University of Stuttgart

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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, *cum laude*   *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*
*Scientific Researcher – Conducted research at the CAI group, with a focus on on Machine Theory of Mind 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*
Visiting Graduate Scholar – Conducted research at the SCAI Lab, leading a project with collaborators from JHU, Harvard, MIT, and PKU. Focus: Bayesian Inverse Planning, Large Language and Reasoning models.

Piratech, Kingston Upon Thames, London, England (Remote)   *2021*
Research Intern – Awared a research fellowship from the University of Padua to work on the project "Urban Big Data for Economic Development".

PEER-REVIEWED PUBLICATIONS

1. M. Bortoletto, C. Ruhdorfer, A. Bulling. "ToM-SSI: Evaluating Theory of Mind in Situated Social Interactions." **EMNLP 2025**.

2. M. Bortoletto, 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. Bortoletto, A. Penzkofer, A. Bulling. "The Overcooked Generalisation Challenge." **TMLR**, 2025.

4. C. Ruhdorfer, M. Bortoletto, A. Bulling. "The Yokai Learning Environment: Tracking Beliefs Over Space and Time." **IJCAI 2025 Worshop on Theory of Mind**. (Oral)

5. M. Bortoletto, C. Ruhdorfer, L. Shi, A. Bulling. "Explicit Modelling of Theory of Mind for Belief Prediction in Nonverbal Social Interactions." **ECAI 2024**. (Oral)

6. M. Bortoletto, C. Ruhdorfer, A. Abdessaied, L. Shi, A. Bulling. "Limits of Theory of Mind Modelling in Dialogue-Based Collaborative Plan Acquisition." **ACL 2024**.

7. M. Bortoletto, L. Shi, A. Bulling. "Neural Reasoning About Agents' Goals, Preferences, and Actions." **AAAI 2024**.

8. E. Sood, L. Shi, M. Bortoletto, Y. Wang, P. Müller, A. Bulling. "Improving neural saliency prediction with a cognitive model of human visual attention." **CogSci 2023**.

9. G. Zhang, M. Bortoletto, Z. Hu, L. Shi, M. Bâce, A. Bulling. "Exploring Natural Language Processing Methods for Interactive Behaviour Modelling." **INTERACT 2023**. ⚲ **Best Student Paper Nomination**

ACADEMIC SERVICES

Mentoring: Supervised 8 B.Sc/M.Sc theses, including one ⚲ *Rul Gunzenhäuser Award* winner
Teaching: "Machine Perception and Learning" (teaching assistant/course organiser), "Computational Theory of Mind and Cognition" (course organiser & lecturer)
Reviewer: CHI'24, CHI'25, ACL ARR'25, TOCHI, UIST'25, AAAI'26
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, LaTeX, Microsoft Suite
Hobbies and activities: Watercolour painting, guitar, running