

# Matteo Bortoletto

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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

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

## RESEARCH & WORK EXPERIENCE

<b>University of Stuttgart, Stuttgart, Germany</b> <i>Scientific Researcher</i> – Conducted research at the CAI group, with a focus on Theory of Mind in AI and large foundation models. Published <b>9 papers at top AI venues</b> (AAAI, ACL, EMNLP, TMLR, ECAI), plus 2 preprints currently under review.	2022 - Present
<b>Johns Hopkins University, Baltimore, USA</b> <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.	2025
<b>Piritech, Kingston Upon Thames, London, England (Remote)</b> <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.	2021

## 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 Workshop 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**

## PREPRINTS

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1. M. Bortoletto, 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. Bortoletto, V Oei, A Penzkofer, A. Bulling. “Unsupervised Partner Design Enables Robust Ad-hoc Teamwork.” arXiv:2508.06336.

## ACADEMIC SERVICES

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**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

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**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

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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

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**Nationality:** Italian

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

**Programming:** Python, PyTorch, Huggingface, NNSight, Julia

**Software & Tools:** Linux, MacOS, Git, L<sup>A</sup>T<sub>E</sub>X, Microsoft Suite

**Hobbies and activities:** Watercolour painting, guitar, running