

# Matteo Bortoletto

Ph.D. Candidate at the University of Stuttgart

[matteo.bortoletto@vis.uni-stuttgart.de](mailto:matteo.bortoletto@vis.uni-stuttgart.de) ◊ [GitHub](#) ◊ [Website](#) ◊ [LinkedIn](#)

## EDUCATION

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- Ph.D. in Computer Science** 2022 - Present  
University of Stuttgart, Germany  
Thesis: "Multi-Modal Collaborative Theory of Mind" (Advisor: Andreas Bulling)
- M.Sc. in Physics of Data, cum laude** 2019 - 2021  
University of Padua, Italy  
Thesis: "Study of performances for Restricted Boltzmann Machines" (Advisor: Marco Baiesi)
- B.Sc. in Physics** 2016 - 2019  
University of Padua, Italy  
Thesis: "Oscillations in stochastic population dynamics models" (Advisor: Samir Suweis)

## PUBLICATIONS

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- Constantin Ruhdorfer, **Matteo Bortoletto**, Anna Penzkofer, Andreas Bulling. "The Overcooked Generalisation Challenge." *Preprint*, 2024.
- Matteo Bortoletto**, Constantin Ruhdorfer, Lei Shi, Andreas Bulling. "Benchmarking Mental State Representations in Language Models." In *ICML Workshop on Mechanistic Interpretability*, 2024.
- 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.
- 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
- 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.

## TEACHING EXPERIENCE

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- Course Organiser and Teaching Assistant**, 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

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- Jann-Philip 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 Ruhdorfer**, 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

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**University of Padua**, Research Fellow  
**Piratech**, Software Developer Intern

*Mar 2021 - May 2021*  
*Mar 2021 - May 2021*

## SERVICES

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**Reviewer:** CHI'24  
**Student Volunteer:** AAI'24

## AWARDS

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<b>Scholarship</b> AAI'24	2024
<b>Best Student Paper Nomination</b> INTERACT'23	2023
<b>StartCup Veneto</b> Start up competition winner, TooBusy	2021
<b>Research Grant</b> , University of Padua, "Urban Big Data for Economic Development"	2021

## SKILLS

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**Languages:** English (fully proficient), Italian (native), Spanish (good), German (basic)  
**Programming:** Python, Bash, R, HTML, C++, Fortran  
**LLMs:** PyTorch, Huggingface, NNSight, LangChain  
**Software & Tools:** Linux, MacOS, Git, L<sup>A</sup>T<sub>E</sub>X, Microsoft Suite  
**Hobbies and activities:** Watercolour painting, playing the guitar, swimming, bodyweight exercise

Last update: June 29, 2024