

Education

- 2021 – present ♦ **Ph.D. Computer Science**, Max Planck Institute for Intelligent Systems & University of Tübingen, Advisor: Prof. Georg Martius. *[Expected graduation: 2026]*
- Intrinsically Motivated Open-ended Learning, Unsupervised Exploration in Reinforcement Learning (RL), Model-based RL and Large-scale Robot Learning.
- 2018 – 2021 ♦ **M.Sc. Electrical Engineering and Information Technology**, Technical University of Munich.
- Graduated with High Distinction, GPA 4.0/4.0 (German grading system: 1.0)
- Specialization in Robotics and Machine Learning
- 2015 – 2018 ♦ **B.Sc. Electrical Engineering and Information Technology**, Technical University of Munich.
- Graduated with High Distinction, GPA 4.0/4.0 (German grading system: 1.0)
- 2010 – 2015 ♦ **German Foreign High School, Abitur Diploma**, Istanbul Lisesi.
- GPA 4.0/4.0 (German grading system: 1.0), Graduated as top of my class.

Work Experience

- April – Sep 2025 ♦ **Research Internship**, Meta FAIR, Paris — CodeGen Team.
- Asymmetric self-play and curriculum learning for RL-based training of LLMs.
- July – Nov 2024 ♦ **Research Internship**, Qualcomm AI Research, Amsterdam.
- Investigated hybrid reasoning strategies to improve robustness and generalization in Vision-Language-Action models.
- Apr 2017 &
Sep–Oct 2017 ♦ **Research Engineering Internship**, Intel, Munich.
- Computational cost estimation of machine learning algorithms for LTE modem power optimization

Publications

Pietro Mazzaglia, **Cansu Sancaktar**, Markus Peschl and Daniel Dijkman. [Hybrid Thinking in Vision-Language-Action Models](#), **3rd CoRL Workshop on Learning Effective Abstractions for Planning**, 2025.

Cansu Sancaktar*, Christian Gumbsch*, Andrii Zadaianchuk, Pavel Kolev and Georg Martius. [SENSEI: Semantic Exploration Guided by Foundation Models to Learn Versatile World Models](#), **ICML 2025**. [\[Project Page\]](#)

Jiaqi Chen, Ji Shi, **Cansu Sancaktar**, Jonas Frey and Georg Martius. [Offline vs. Online Learning in Model-based RL: Lessons for Data Collection Strategies](#), **RLC 2025**.

Albane Ruaud, **Cansu Sancaktar**, Marco Bagatella, Christoph Ratzke and Georg Martius. [Modelling Microbial Communities with Graph Neural Networks](#), **ICML 2024**. [\[Project Page\]](#)

Cansu Sancaktar, Justus Piater and Georg Martius. [Regularity as Intrinsic Reward for Free Play](#), **NeurIPS 2023**. [\[Project Page\]](#), [Code](#)

Bhavya Sukhija, Lenart Treven, **Cansu Sancaktar**, Sebastian Blaes, Stelian Coros and Andreas Krause. [Optimistic Active Exploration of Dynamical Systems](#), **NeurIPS 2023**.

Cansu Sancaktar, Sebastian Blaes and Georg Martius. [Curious Exploration via Structured World Models Yields Zero-Shot Object Manipulation](#), **NeurIPS 2022**. [\[Code\]](#)

- Best poster award at the IEEE RAS Technical Committee on Model-Based Optimization for Robotics poster event 2022.

Nico Gürtler, Felix Widmaier, **Cansu Sancaktar**, ... and Georg Martius, *Real robot challenge 2022: Learning dexterous manipulation from offline data in the real world.*, **NeurIPS 2022 Competition Track**.

Cansu Sancaktar, Marcel van Gerven, and Pablo Lanillos. *End-to-End Pixel-Based Deep Active Inference for Body Perception and Action*, 10th International Conference on Development and Learning and Epigenetic Robotics (ICDL-EpiRob), IEEE, 2020. [Poster presentation, Code]

Honors & Awards

- 2024 ◇ **MPI-IS Outstanding Female Doctoral Student Prize: Honorable Mention.**
- 2017 – 2021 ◇ **Scholarship Holder of the Max Weber-Program.**
This program aims at highly gifted students at universities in Bavaria.
- 2015 – 2020 ◇ **DAAD Scholarship Holder.**
A merit-based scholarship granted for my studies in Germany.
- Aug 2014 ◇ **Selected Attendee at the 8th Asian Science Camp.**
Chosen as one of the 8 representatives of Turkey at the 8th Asian Science Camp which is an event organized by Nobel laureates.

Professional Activities

Workshops & Competitions

- 2023 & 2024 ◇ Co-organizer of the workshop **Intrinsically Motivated Open-ended Learning, NeurIPS 2023 & 2024.**
- 2022 ◇ Co-organizer of the competition **Real Robot Challenge III - Learning Dexterous Manipulation from Offline Data in the Real World, NeurIPS 2022.**

Outreach

- 2022 – 2024 ◇ Co-organizer of the S4 Seminar Series of the IMPRS-IS graduate program.
- 2022 - 2023 ◇ Elected student representative of the IMPRS-IS graduate program for MPI-IS Tübingen.
- 2021 - 2022 ◇ Co-organizer of the Talk & Talk series at the Max Planck Institute for Intelligent Systems.

Teaching & Supervision

- 2024 ◇ **Jiaqi Chen, ETH Zürich**, Master's Thesis: *Offline vs. Online Learning in Model-based RL: Lessons for Data Collection Strategies* (accepted at RLC 2025)
- ◇ **Pulkit Goyal, University of Tübingen**, Master's Thesis: *Building Visual Semantic Bias in Curious Exploration during Free Play.*
- 2023 ◇ **Pro-seminar in Reinforcement Learning**, University of Tübingen.
- ◇ **Pulkit Goyal, University of Tübingen**, Essay Rotation: *Can Self-Exploring (Curious) RL Agents Model OCD?*
- ◇ **Shukrullo Nazirjonov, CaCTüS Internship**, *Extending Intrinsically Motivated Reinforcement Learning to Real Robots.*

Theses

- 2021 ◇ **Master's Thesis: State-Space Models for Discovering Low-Dimensional Dynamics in Neurophysiological Recordings**
 - Advisor: Prof. Jakob Macke, *Machine Learning in Science*, University of Tübingen.
- 2018 ◇ **Bachelor's Thesis: Long Short-Term Memory Networks as Adaptive Filters**
 - Advisor: Prof. Wolfgang Utschick, *Methods of Signal Processing*, TUM.

Skills

- Languages ◇ Turkish (native), English (C2), German (C2), Korean (A1).
- Programming ◇ Python, C, C++, MATLAB, HTML, Linux/Shell Script.
- Frameworks ◇ PyTorch, JAX, Tensorflow, Keras.
- Robotics ◇ ROS, Gazebo, Arduino.
- Misc. ◇ $\LaTeX$, Inkscape, Simulink.

Invited Talks

- ◇ Phillip Isola's Lab @ MIT, *Nov 2025*.
- ◇ BeNeRL Seminar Series, *Nov 2023*.
- ◇ Human and Machine Cognition Lab (Charley Wu) at the University of Tübingen, *Nov 2023*.
- ◇ Computational Principles of Intelligence lab (Eric Schulz) at Max Planck Institute for Biological Cybernetics, *Mar 2023*.
- ◇ Scientific talk at the 2023 IMPRS-IS Interview Symposium, *Jan 2023*.