

# Intelligent and Interactive Systems

## ***Making robots learn to perceive and act with understanding***

At IIS we enable autonomous robots to perceive and act flexibly and robustly in unstructured environments, leveraging machine learning methods to build perceptual, motor and reasoning skills.

We seek to answer the question: *How can we enable robots to acquire the knowledge and understanding they require to interact sensibly with unstructured environments?*

Our research addresses complete perception-action loops, from computer vision to grasping and manipulation, using reactive algorithms and/or cognitive models. Much of our work uses machine learning to enable robots to synthesize and improve complex and robust sensorimotor behavior with experience. Related areas of interest include human-robot interaction, image and video analysis, and visual neuroscience.

## **Working With Us**

- Check our thesis topics for [Bachelor and Master students](#).



Group picture taken at our 2024 retreat at Meissner Haus.

## News

- 2025-07-15 Justus Piater gives an invited keynote *Making robots learn to perceive and act with understanding* at [The 12th ECCOMAS Thematic Conference on Multibody Dynamics](#), Innsbruck. [\[Abstract\]](#)
- 2025-07-11 Justus Piater and Alejandro Agostini give an invited talk *Learning Symbols and Abstractions in Robot Planning* at [Abstraction: Language - Science - Engineering](#), Bolzano. (International Workshop)
- 2025-04-25 Simon Haller-Seeber gives an invited talk *AI-powered tools for real-time transcription and translation in action: A self-hosted open-source framework for digital spaces*. at [Medien - Wissen - Bildung 2025: Streifzüge an den Nahtstellen von Medien, Bildung und Philosophie](#), Universität Innsbruck.
- 2025-04-10 Simon Haller-Seeber gives an invited keynote *Hands-on Approaches to Software, Robotics, and AI: Exploring Experiments and Science in Action* at [European Conference on Educational Robotics \(ECER 2025\)](#), HTL Anichstrasse.
- 2025-04-10 Simon Haller-Seeber and Christopher Kelter teach a tutorial *Was sind Roboter, was macht eine KI? Entwickle deine eigene KI und programmiere unsere Minibots* at Campustag BG/BRG Sillgasse, Universität Innsbruck.
- 2025-04-03 Justus Piater gives an invited keynote *What is AI really?* at [Cross-Border Seminar: AI in Law and Practice: Regional Perspectives on European Rules](#), Universität Innsbruck.
- 2025-03-06 Justus Piater teaches a tutorial *Funktionsweise, Möglichkeiten und Grenzen von KI* at *Lieber gleich berechtigt als später: Hallo KI, hilfst du uns bei der Gleichstellung?!*, Tiroler Bildungsinstitut Grillhof Vill. [\[Abstract\]](#)
- 2025-02-26 Simon Haller-Seeber and Christopher Kelter teach a tutorial *Programmieren eines autonomen Roboters anhand einer selbstentwickelten KI* at STAIR-Lab INNALP Workshop für das Gymnasium Ursulinenen Innsbruck, Universität Innsbruck.
- 2025-02-26 Marko Zarić teaches a tutorial *Einführung in das Programmieren mit Microcontrollern* at STAIR-Lab INNALP Workshop für das Gymnasium Ursulinenen Innsbruck, Universität Innsbruck.
- 2025-01-31 Justus Piater gives an invited lecture *High-Level AI For Autonomous Robots* at [ELIAS-ELLIS-VISMAC Winter School 2025](#), Brunico, Italy. [\[Abstract\]](#)

[Older News](#)

## Postal Address

University of Innsbruck  
Department of Computer Science  
Technikerstr. 21a  
6020 Innsbruck  
Austria

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