

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

- A doctoral position will be opened shortly, to start in September or October 2023. If interested, contact one of the [IIS professors](#).
- Check our thesis topics for [Bachelor and Master students](#).



Group picture taken at our 2022 retreat in Obergurgl

News

- 2023-07-05 Justus Piater gives an invited talk *Möglichkeiten und Grenzen der KI in der Robotik* at [Bodenseegespräche 2023](#), Hard bei Bregenz, Austria. [\[Abstract\]](#)
- 2023-05-25 Justus Piater gives an invited talk *Künstliche Intelligenz & ChatGPT: Möglichkeiten und Grenzen in der Hochschullehre* at [Digitales Lehren und Lernen](#), Medizinische Universität Innsbruck und online. (Informations- und Diskussionsveranstaltung für Bedienstete und Studierende)
- 2023-05-23 Justus Piater gives an invited talk *Robot Learning – von Imitation bis Kognition* at [OVE-IT-Kolloquium: Maschinelles Lernen](#), OVE, Wien, und online. [\[Abstract\]](#)
- 2023-05-11 Simon Haller-Seeber, Patrick Hofmann, and Christopher Kelter teach a tutorial *STAIR Lab Workshop: Programmieren eines autonomen Roboters anhand einer selbstentwickelten KI* at INNALP Workshop für die NMS Hötting West, Universität Innsbruck.
- 2023-05-04 Justus Piater is a panelist at a public discussion on *Künstliche Intelligenz (KI) in Bibliotheken*, Congress Innsbruck. (Podiumsdiskussion am 1. Österreichischen Bibliothekskongress 2023)
- 2023-03-29 Simon Haller-Seeber, Christopher Kelter, and Patrick Hofmann 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.
- 2023-01-21 Justus Piater appears in the media: [Auch ein Roboter muss höflich sein](#). (Interview by Die Presse (in German))
- 2022-12-19 Marko Zaric and Simon Haller-Seeber teach a tutorial *Einführung in die Programmierung mit dem BBC Micro:Bit* at Campustag NMS Hötting, Universität Innsbruck.

- Justus Piater, Matteo Saveriano, Hector Villeda, and Erwan Renaudo appear in the media:
2022-12-06 [Schritt für Schritt](#). (Zukunft Forschung – Das Magazin für Wissenschaft und Forschung der Universität Innsbruck 2 (2022)) [\[Abstract\]](#)
- Justus Piater, Erwan Renaudo, and Matthias Schurz appear in the media: [Mithilfe der Psychologie: Forscher wollen Robotern soziale Fähigkeiten beibringen](#). (Interview by Innovation Origins) [\[Abstract\]](#)

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