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.

Bachelor students: **Want to create artificial intelligence for autonomous robots?** Want to join our interdisciplinary LFUI team to compete in the 2020 RoboCup@Work competition? Take the Introduction to Robotics course in the winter semester 2019-20!

Group picture taken at our retreat in Obergurgl

News

2020-01-29	Justus Piater gives an invited talk *Digital Science* at Vortragsreihe „Primers for Predocs – Strategien für eine erfolgreiche Promotion“, Universität Heidelberg. [Abstract]
2020-01-03	Justus Piater gives an invited talk *Künstliche Intelligenz: Grundlagen, Erfolge, Herausforderungen* at 47. Tagung des Innsbrucker Kreises von MoraltheologInnen und SozialethikerInnen, Innsbruck.
2019-12-19	Justus Piater appears in the media: TV interview by ORF 2 Tirol Heute RedHaus (in German).
2019-12-12	Justus Piater gives an invited lecture *Too Smart to Be Trusted – Do I Even Want to Understand My Robot?* at TrustRobots Lecture series Trust in Robots, TU Vienna.
2019-12-05	IIS guest **Heiko Neumann**, University of Ulm, gives an invited colloquium *Biologically inspired visual-auditory processing – from brain-like computation to neuromorphic algorithms* at IFI Lunchtime Seminar. [Abstract]
2019-11-26	IIS guest **Tamim Asfour**, Karlsruhe Institute of Technology, gives an invited keynote *Engineering Humanoids with Motion Intelligence* at inday students. [Abstract]
2019-11-25	Justus Piater gives an invited talk *Enabling Robots to Learn Abstract Concepts* at TriCoLore – Creativity | Cognition | Computation, Bolzano, Italy.
2019-11-18	Justus Piater gives an invited talk *Künstliche Intelligenz in einer menschlichen Gesellschaft* at Robotik in Medizin und Pflege – Jubiläumssymposium des Klinischen Ethikkommittees, A.ö. Landeskrankenhaus – Universitätskliniken Innsbruck.
2019-11-08	Justus Piater gives an invited talk *AI Transparency in Autonomous Vehicles* at Towards Cognitive Vehicles: perception, learning and decision making under real-world constraints. Is bio-inspiration helpful?, Macau.

2019-11-03	Justus Piater, Philipp Gschwandtner, and Simon Haller appear in the media: Österreich-Bild: Bits und Berge - 350 Jahre Forschung in Innsbruck; TV Documentary by ORF 2 (in German).

Older News

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How to find us: See the directions.

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