Intelligent and Interactive Systems

Research at IIS is situated at the intersection of computer vision, machine learning and robotics. Much of our work is motivated by the perceptual needs of autonomous robots, and focuses on visual inference as it serves activity such as grasping. Other areas of interest include the psychology and biology of perception, and video analysis for applications such as sports or human-computer interaction.

Working With Us

Check our thesis topics for Bachelor and Master students.

News

- Justus Piater is organizing, with Tamim Asfour (KIT), the workshop on Learning Reusable Concepts in Robotics at RSS in July 2015.
- Our following paper won the **Best Paper Award** at ACML 2014:

  Hanchen Xiong, Sandor Szedmak Justus Piater, Towards Maximum Likelihood: Learning Undirected Graphical Models using Persistent Sequential Monte Carlo. [Abstract] [BibTeX]

- Justus Piater is an **invited speaker** at the workshop on Human versus Robot Grasping and Manipulation—How Can We Close the Gap? at RSS July 12, 2014, at UC Berkeley.
- Justus Piater is co-organizing the IROS **Workshop on Robots in Clutter: Perception and Interaction in Clutter** in Chicago, September 18, 2014.
- Antonio Rodriguez-Sanchez is the editor of the special issue on Frontiers in Computational Neuroscience about **Hierarchical object representations in the visual cortex and computer vision**.
- Justus Piater is lecturing on Robot Vision at the **International Autumn School on "Human-Robot-Interaction**, November 18th–22nd, 2013, TU Dresden, Germany.
- Emre Ugur is organizing the IROS2013 **Workshop on Neuroscience and Robotics: Towards a robot-enabled, neuroscience-guided healthy society** in Tokyo, 3 November 2013.
- Our following paper won a **Best Vision Paper Award**:

  Damien Teney, Justus Piater, Continuous Pose Estimation in 2D Images at Instance and Category Levels. Tenth Conference on Computer and Robot Vision, 2013. © IEEE [Link] [PDF] [Abstract] [BibTeX]

- Justus Piater is co-organizing the R:SS **Workshop on Robots in Clutter: Preparing Robots for the Real World** in Berlin, 27 June 2013.
- Justus Piater is co-organizing the ICRA 2013 **Workshop on Semantics, Identification, and Control of Robot-Human-Environment Interaction** in Karlsruhe, 10 May 2013.
- Justus Piater is an **invited speaker** at the ICRA 2013 Workshop on **Bootstrapping Structural Knowledge from Sensory-motor Experience** in Karlsruhe, 6 May 2013.
- **Nicu Sebe**, professor of computer science at the University of Trento, is giving at talk on Human-centered Computing: Challenges and Perspectives on **April 18, 2013, at 16:15** in HS

D.
- **Francisco Valero-Cuevas**, Professor of biomedical engineering and biokinesiology and physical therapy at the University of Southern California, is giving a talk on Computational Neuromechanics on March 14, 2013, at 16:15 in HS E.
- **Nicolai Petkov** is visiting IIS for three days, and is giving a talk on Brain-inspired computing vision for machine vision on 10 January 2013, 16:15, in HS C.
- Justus Piater and Antonio Rodríguez-Sánchez are organizing the **2013 ÖAGM/AAPR Workshop** in Innsbruck.
- IIS has published a paper in PLoS One:

  Antonio Rodríguez-Sánchez, John Tsotsos, The roles of endstopped and curvature tuned computations in a hierarchical representation of 2D shape. PLoS ONE 7 (8), pp. 1–13, 2012. [Abstract] [BibTeX]

- **Jim Little** is giving an extended talk on Finding Objects in Cluttered Scenes for Home Robotics on 24 April 2012, 14:15-15:30, in HS D.
- Justus Piater is an **invited speaker** at the CogSys 2012 Workshop on **Deep Hierarchies in Vision** in Vienna, 21 February 2012.
- **Ales Leonardis** is giving a talk on Combining compositional shape hierarchy and multi-class object taxonomy for efficient object categorisation on 1 December 2011, 16:15, in HS C.
- Justus Piater is an **invited speaker** at the **29th Pattern Recognition and Computer Vision Colloquium** in Prague, 13 October 2011.
- **Brian Moore** is giving a talk on Transferring grasping skills from humans to robots at the Computer Science Department (ICT Building, Seminar Room 1), 25 May 2011, 12.00-13.00.
- Justus Piater is an **invited speaker** at the R:SS Workshop on **Mobile Manipulation: Learning to Manipulate** in Los Angeles, 27 June 2011.
- Justus Piater lectures at the **CogX 2011 Spring School** in Vienna, 27.4.–5.5.
- **Inaugural Lecture – *Antrittsvorlesung*** by Justus Piater: 14 April 2011 17:00 in the large auditorium of civil engineering – *Großer Hörsaal der Fakultät für Bauingenieurwissenschaften*. Einladung (Invitation, in German only) Video (in German only)

Press

- Eine Kamera als Sehhilfe (iPoint 06.02.2015, in German)
- #tiroltvvideo { display: none; } #tiroltvvideo:target { display: block; } Robotik an der Uni Innsbruck - TirolTV vom 1 Dezember 2014
- #raivideo { display: none; } #raivideo:target { display: block; } RAI Südtirol - Tagesschau vom 12 Juli 2014
- Roboter, die von Menschen lernen - (iPoint 03.01.2014, in German)
- Learning from the Brain - UIBK news 21/11/2012 reports on 2DSIL, a biologically-inspired model of shape representation.
- Stille Welt - Gehörlos in Tirol - the Tyrolean street newspaper reports on the SignSpeak project. (20er, pp. 6-7, April 2012, in German)
- Übersetzungslücken schließen - the UIBK supplement to an Austrian newspaper reports on our SignSpeak project (wissenswert 18 pp. 16-17, February 2012, in German)
- Schlaue Roboter im Haushalt (iPoint 13.04.2011, in German)
- Roboter lernen lernen (zukunft forschung 2/2010, in German)

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