

# Group

## Technical Aspects of Multimodal Systems

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# Group TAMS

## Research Focus: Service Robotics

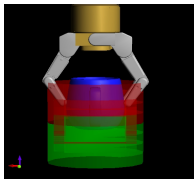
- ▶ mobile platform TASER
- ▶ different sensor and actuator types
- ▶ overall goal:
  - ▶ accomplish delivery tasks in an office environment
  - ▶ human-robot interaction
- ▶ testing environment for:
  - ▶ robot software architecture
  - ▶ sensor data processing / fusion
  - ▶ new sensor / actuator types



# Research topics

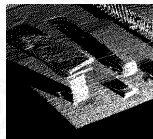
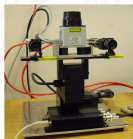
## Grasping and Manipulation:

- ▶ virtual environment for grasp simulation and learning
- ▶ pneumatic robot hand (Shadow)
- ▶ HANDLE project (FP7)



## Stereo-Vision

- ▶ fusion with laser-range finder
- ▶ PTZ-Unit for 3D-laser-data
- ▶ object detection and localization



Baier, Zhang, *Learning to Grasp Everyday Objects using Reinforcement-Learning with Automatic Value Cut-Off'*,

IEEE IROS (2007)

# Research topics

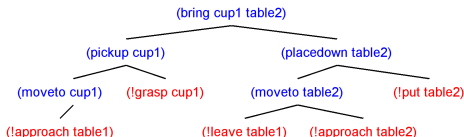
## Intelligent Camera Systems

- ▶ image processing directly on the camera
- ▶ framework for assigning arbitrary (sub-)tasks
- ▶ research on hardware-based image processing



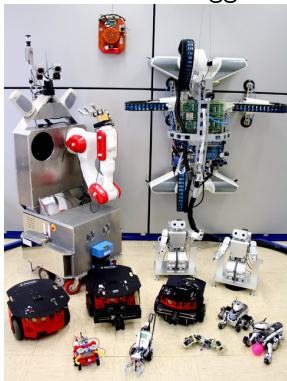
## High-Level Robot Control

- ▶ hierarchical planner
- ▶ library of *atomic* robot actions
- ▶ symbol grounding



# Thank you for your interest!

Any questions, comments and suggestions are welcome!



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