

GMAR Robotics School 2021

Draft; do not publish

Organization

- Date: tentatively 2021-08-23 - 2021-08-27 (Monday-Friday)
- Location: [Villa Blanka](#); Innsbruck
- Topic: Mobile Manipulation

Audience:

- advanced Master and young doctoral students in subject areas related to robotics (engineering, computer science, etc.)
- 15-25? participants, depending on the location
- prerequisite: familiarity with ROS, to be specified; recommend tutorials

Concept:

- hands-on, making things work on real robots
- technical lectures concentrated near the beginning of the week
- hacking starting day one, growing in importance as the course advances
- hacking in small teams dedicated to specific functionalities
- some application talks towards the end, not relevant to the hacking

Implementation Goal:

- SLAM, autonomous navigation
- vision-based grasping of (known and/or unknown?) objects from known locations
- placing objects in designated locations
- execution of high-level plans involving the above capabilities

Robots:

- 1 mobile base + arm [platform](#) for each group of 3-4 students
- or, 1 UIBK mobile manipulator (homebrew base with DOBOT M1 ? Franka Emika Panda)
- or, TUW Honda mobile manipulator

Schedule

Each session lasts 90 minutes; blank = hacking.

Sessions	Monday	Tuesday	Wednesday	Thursday	Friday
Morning I	Mechatronics of mobile manipulators (Johannes Gerstmayr or Colleague*)	Robot Vision (Markus Vincze or Colleague *)	Human-Robot Interaction and Safety Aspects (Mathias Brandstötter*)	Task Planning (Gerald Steinbauer)	Hacking: Final tests
Morning II	Kinematics (Andreas Müller*)	Picking and Placing (Justus Piater*)	SLAM/Navigation (Incubed IT) if not in Bozen Who does it?	Industry event in Alpbach . Departure at 12am	Hacking: Teams competition?
Afternoon I	Dynamics, Control (Wolfgang Werth*)	Hacking: Path/Motion Planning in ROS	Hacking: Navigation in ROS	Hacking: Task Planning	
Afternoon II	Hacking: Set-up the robots				
Dinner	in town	on site	on site	Alpbach?	-

* confirmed

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