

# 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*Draft; do not publish*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	
<b>Morning I</b>	Mechatronics of mobile manipulators (Johannes Gerstmayr or Colleague)	Robot Vision (Markus Vincze or Colleague )	Visual Servoing (Antonio Paolillo)	Industry event + Robotics talks event in <b>Alpbach</b> . Departure at 8.30am, return 15.30pm	Task Planning (Gerald Steinbauer)	
<b>Morning II</b>	Kinematics (Andreas Müller)	Picking and Placing (Justus Piater)	Hacking: Visual Servoing for Pick and Place		Hacking: Task Planning	
<b>Afternoon I</b>	Dynamics, Control (Wolfgang Werth)	Human-Robot Interaction and Safety Aspects (Mathias Brandstötter)	Introduction to ROS Navigation Stack (Matteo Saveriano)			Hacking: <b>Team competition</b>
<b>Afternoon II</b>	Hacking: Set-up the robots	Hacking: Path/Motion Planning in ROS	Hacking: Navigation in ROS			
<b>Dinner</b>	on site	on site	on site	in town	-	

\* confirmed

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