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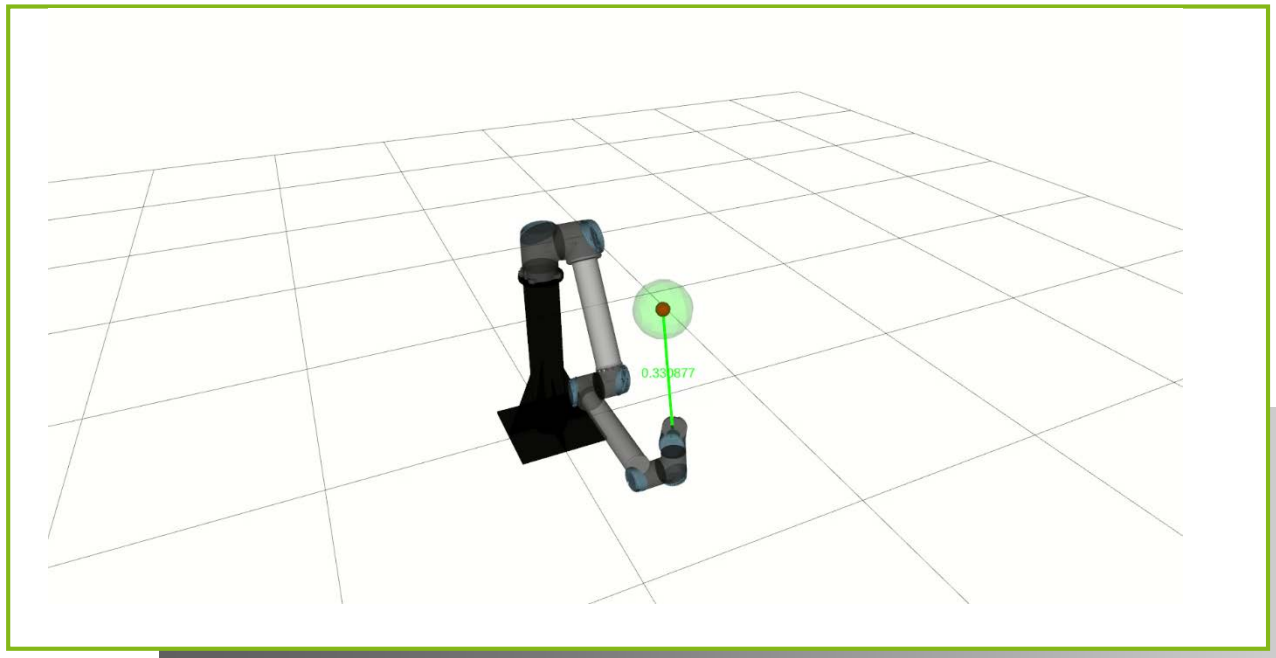

Lab Introduction

Assignment: ROS Robot Motion Control

Maximilian Krämer, Katharina Bartsch, apl. Prof. Dr. rer. nat. Frank Hoffmann

Univ.-Prof. Dr.-Ing. Prof. h.c. Dr. h.c. Torsten Bertram
Institute of Control Theory and Systems Engineering

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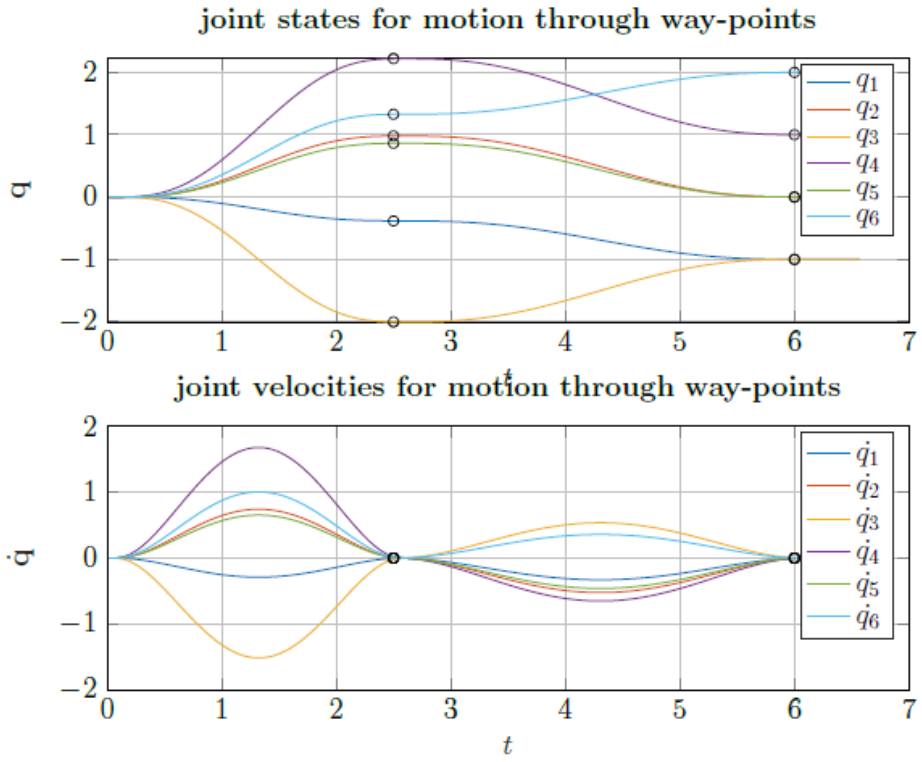
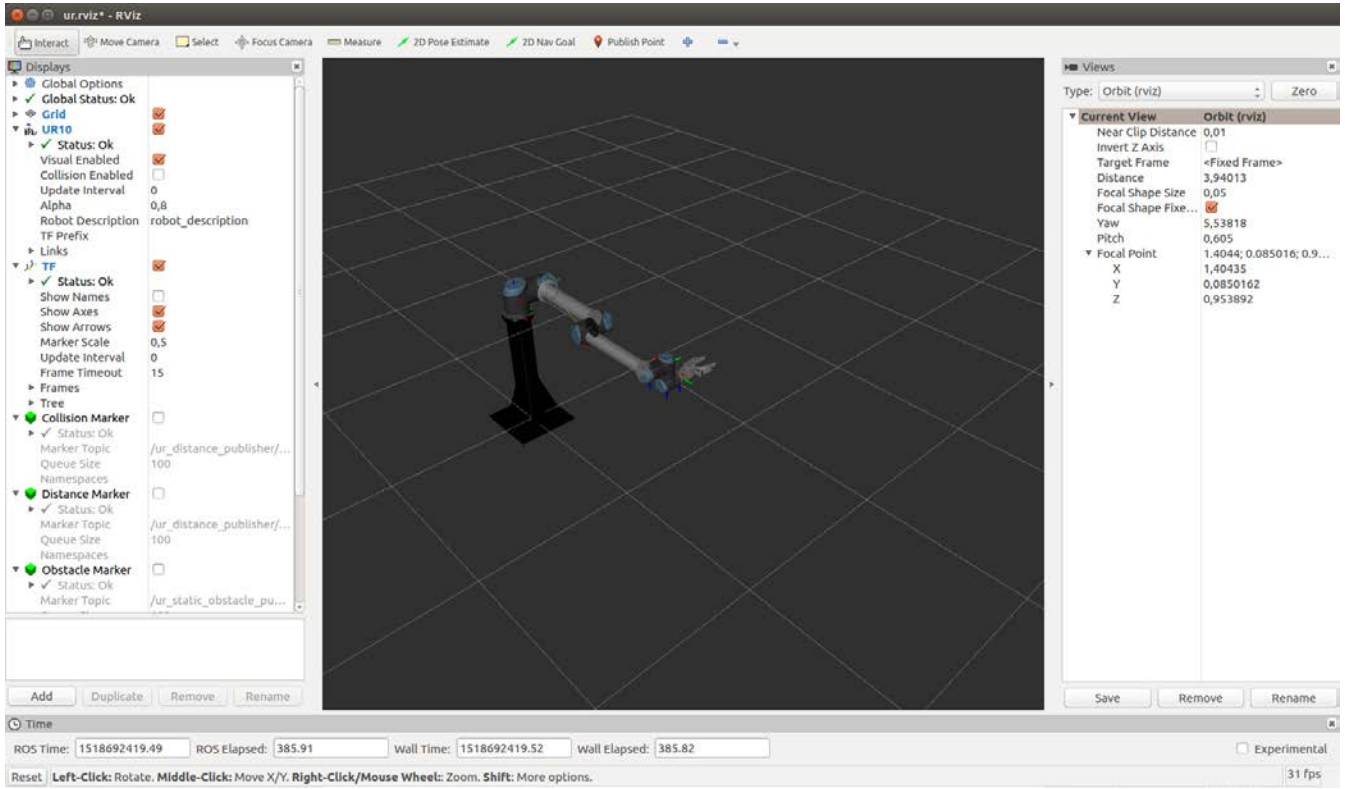
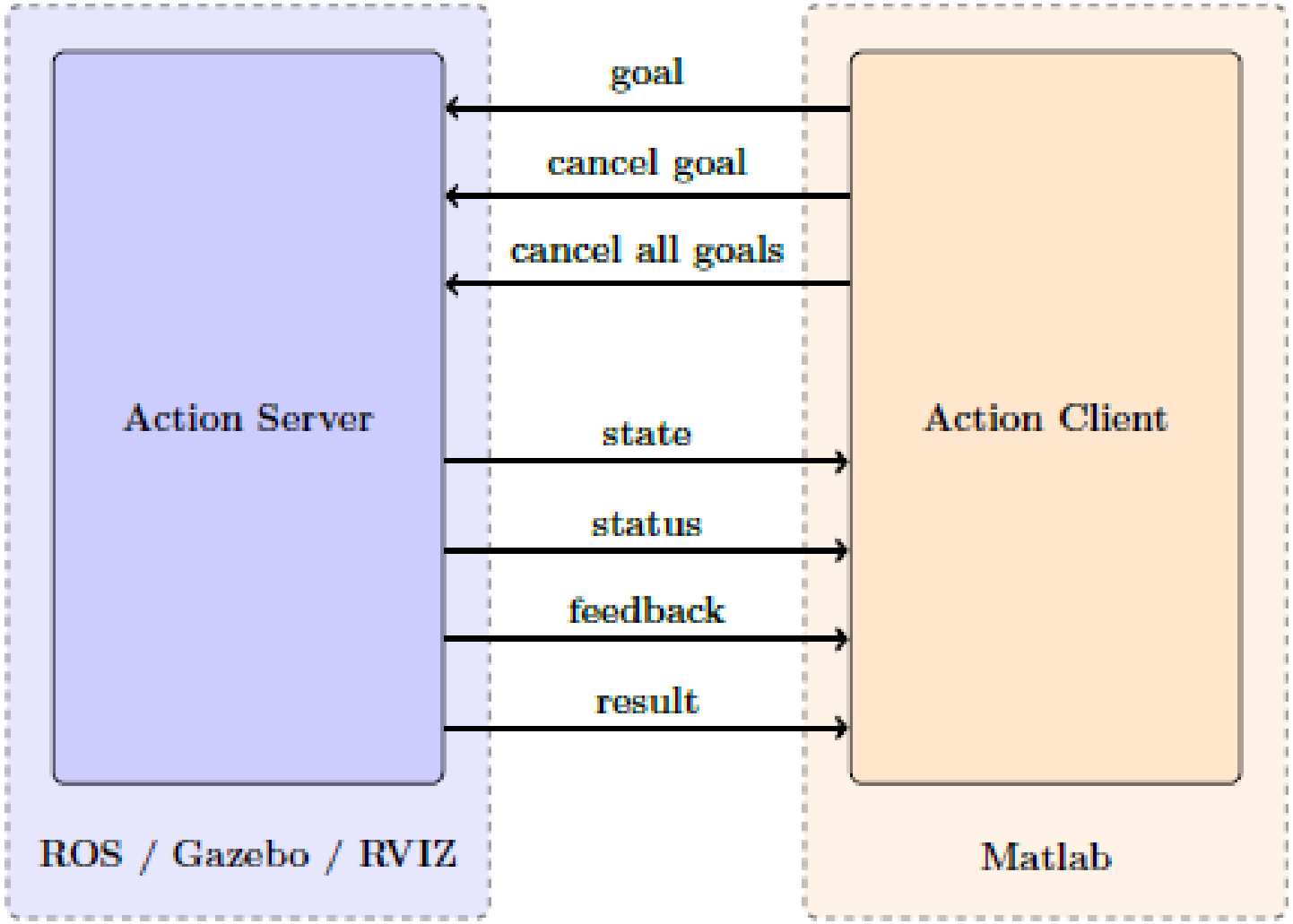
Take-Home Assignment

- Inverse Kinematics
- Trajectory Following





ROS Action Server & Client



UR Package

- UR visualization only (Rviz)
  - Pure display of the robot in a certain configuration
  - Relies on external publisher of joint states (e.g. GUI, Matlab)

- UR robot simulation (Rviz + Gazebo)
  - Gazebo simulates robot dynamics according to commanded joint torques
  - default `joint_trajectory_controller` is launched and ready to receive target joint configurations

- Real UR robot (Rviz + driver)
  - `ur_modern_driver` package
  - Same control interface as in simulation

Organization

- **Mandatory** for A&R students to gain 5+**1** CP
- **Present** and **defend** your solution in a breakout session
- Time slots for presentations (groups of **3** students)
  - 10.2.2021, 10:**00** – 13:30, 2 x 14 slots
  - 11.2.2021, 10:**00** – 13:30, 2 x 14 slots
  - 12.2.2021, 10:**00** – 13:30, 2 x 14 slots
  - 15min per group, 2 groups in parallel
- Please join the Zoom session **in time** (5min ahead)
- **Prepare** beforehand (Microphone, Camera, Matlab, VM, UR Package)

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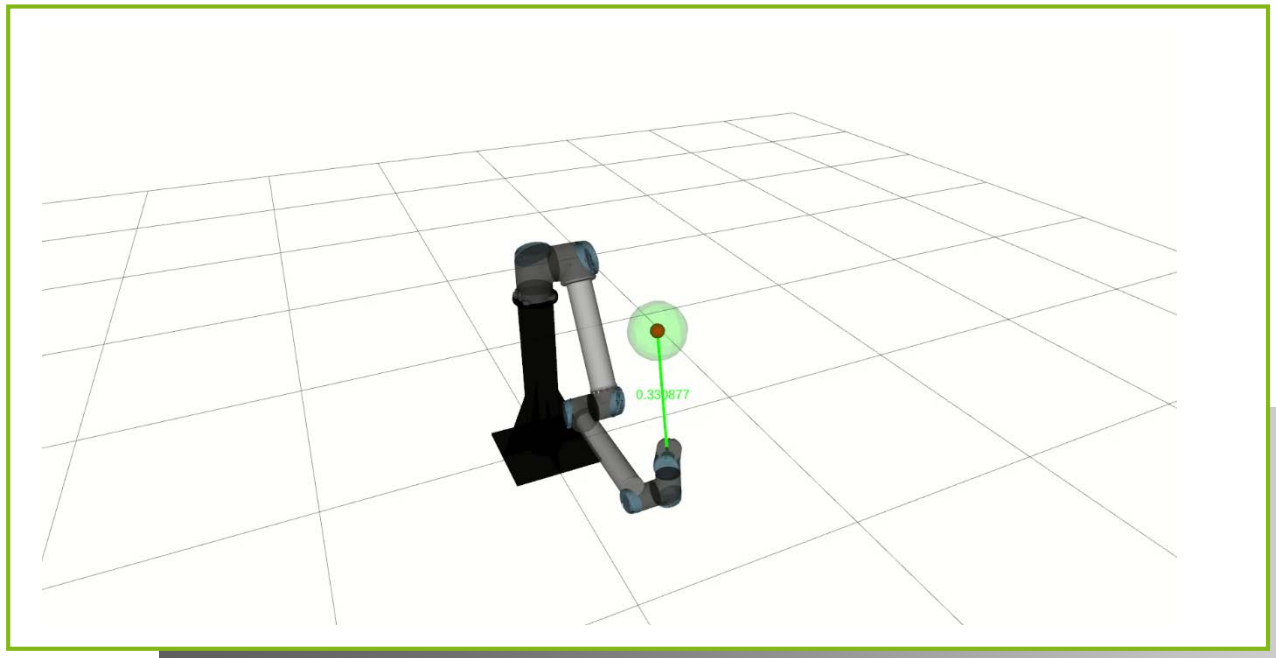

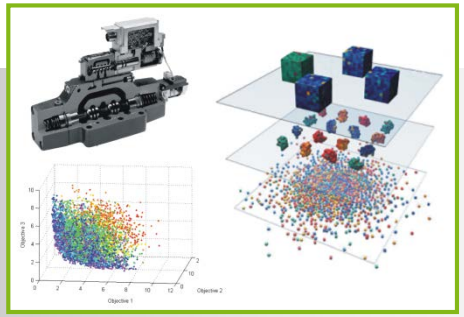

Thank you for your kind attention!

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