

# Masters Thesis: Robot Control for Modular Industrial Robots



Masters Thesis · Informatics, Mechanical Engineering, Robotics · Fulltime ·  
HQ

The thesis is offered in cooperation with the chair of Robotics, Artificial Intelligence and Real Time Systems, professorship for Cyber Physical Systems of Prof. Dr.-Ing. Matthias Althoff.

## YOUR MISSION

You'll be developing, implementing and verifying a robot controller for modular industrial robots. You will analyze several relevant control strategies and components for their effectiveness and evaluate their feasibility for future use. You will be a part of the engineering team and work on the forefront of robotics, with your own tasks and responsibilities. Parts of your work may include the following:

- Analysis of modular industrial robots,
- Identification of core improvement possibilities for the robot controller,
- Implementation of several control strategies, e.g. inclusion of torque estimation, friction observer, elastic joint control, feed-forward pre-control,
- Comparison of different control strategies for different robot states,
- Implementation of advanced sensor filtering techniques.

## YOUR PROFILE

- You're studying at TUM with a focus on computer science, mechatronics, or electrical engineering.
- You have worked with robotics, control theory, model building before.
- You know C++ and Python really well.
- You want to gain real world experience during your masters thesis.
- You love to take responsibility.
- You're not scared of screws and bolts.

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