



## Development of an Electromechanical Gripper System for Robotic Handling

*Project topic for Oberseminar 2025/2026*

### **Description:**

The Robotics Group at the Chair of Communication Networks (ComNets) is actively researching novel methods for collision-free robot motion in complex environments. This project offers students a hands-on opportunity to address a practical challenge in industrial automation: the robotic handling of industry-standard containers and boxes.

The primary objective is to design, develop, and test a specialized end-effector (gripper) for a robotic arm. This involves creating a custom adapter that allows for the rapid and secure lifting of containers. The final outcome of this project will be a functional prototype of a fast electromechanical locking mechanism, enabling the safe and efficient manipulation of KLT containers by a robot. Students will be supported throughout the design, construction, and testing phases by our in-house experts and will have access to our 3D printing facilities for rapid prototyping.

**Tasks:**

- Gain practical insight and hands-on experience in the field of applied robotics.
- Design an adapter plate to interface between a standard container and a universal robot flange.
- Develop an integrated electromechanical locking system for secure gripping.
- Manufacture and experimentally validate the developed system using a real-world robotic platform.



**Keywords:** Robotics, 3D Printing, Mechanical Design, Mechatronics

**Language:** German, English

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