

Master's Thesis

# Model based Collision Identification for Real-Time Jaco2 Robot Manipulation

By the advancement of robotics and communication networks such as 5G, telemedicine has become a critical application for remote diagnosis and treatment.

In this project, we want to perform robotic teleoperation using a Sigma 7 haptic master and a Jaco 2 robotic manipulator.

Tasks:

- State of the art review and mathematical modeling
- Jaco2 haptic controller implementation
- Fault-tolerant (delay, network disconnect) controller design
- System evaluation with external force-torque sensor

## Prerequisites

- Strong background in C++ programming
- Solid background in control theory
- Be familiar with robot dynamics and kinematics
- Be familiar with the robot operating system (ROS) and ROS Control (Optional)

## Contact

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## Advisors

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