Interdisciplinary Project

Development of semi-autonomous human-robot interaction

**Topic**

Robots are set to take over a variety of different tasks in our factories. Given the complexity of most of these tasks, we fully expect the robots to run into problems from time to time. In the SAINT (Supervised Autonomous Interaction in uNknown Territories) project, the chair of astronautics (LRT) is researching into efficient ways of sharing autonomy between a robot and a human operator helping in case of errors.

The goal of this IDP is the development of 2-4 semi-autonomous apps that combine the robot’s autonomy (accessible over ROS service calls) and the input of the human operator over a GUI implemented in Unity.

**Work Packages**

- Analyze use cases for semi-autonomous interaction
- Define 2-4 apps from the most suitable use cases
- Implement the UI of the semi-autonomous apps in Unity and embed it in the current teleoperation interface
- Implement the robot-facing side of the semi-autonomous app as a ROS node
- Evaluate your apps as part of a user study

**Prerequisites**

- Experience with ROS
- Good knowledge of Python
- Experience with Unity 3D is preferable
- Experience with using git

**Contact**

Jonis Kiesbye  
j.kiesbye@tum.de

MW 2616 (Building 6, 2nd Floor)  
089 289 15996

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