Comparison and Validation of real and simulated robot system using ROS

**About the project:**

The project deals with the development of machine learning method to perform an assembly task using KUKA iiwa robot. The project is divided into three phases: data acquisition from simulated and real robot using ROS, model development using machine learning and experimental validation on real assembly task.



**What is the to be given:**

The initial phase of the project requires data acquisition using real robot and simulated robot. The simulation environment should use a Physics engine to predict the forces acting on the robot based on the CAD model of the setup. The predicted forces should match with a high accuracy (>95%) with the real setup.

**What you should do:**

1. Develop a real time ROS interface for the KUKA iiwa robot to be simulated in V-REP.
2. Compare and validate the forces acting on the real robot with the simulated robot.
3. Analyze an assembly operation for real case scenario.

**Skills:**

The candidate should have prior knowledge about CAD software (SolidWorks or CATIA etc.).

The desired skills are knowledge in:

* Basic robot programming
* C/C++, Java
* Robot Operating System (ROS) and Ubuntu

**Contact:**

Dipl.-Ing. J. Philipp Städter

Lehrstuhl Automatisierungstechnik

LG 3A, Siemens-Halske-Ring 14

BTU Cottbus Senftenberg