SIEMENS

NEUROROBOTICS

Thesis Call

TECHNISCHE UNIVERSITÄT
IN DER KULTURHAUPTSTADT EUROPAS
CHEMNITZ

AI-Assisted Programming of Robot Motion Trajectories

(in Cooperation with Siemens)

This thesis integrates AI assistance into an existing script editor used to program robot motion functions. The user interface will be extended so that operators can describe their requirements in text, including:

- the desired tool-centre-point (TCP) trajectory
- the program flow
- additional machine functions (e.g., grippers, material feeding for printing robots)

Based on the robot's kinematic configuration and reachable workspace, the AI component should generate a suitable motion program. Within a set of use cases to be defined during the project, the AI should further be enabled to generate motion trajectories directly from natural-language descriptions.

For the AI training and adaptation process, existing natural-language descriptions of the Motion Control Language (MCL) and already available vector databases can be leveraged. The work is highly practice-oriented and will be carried out as part of our development team.

Advisor:

- Prof. Florian Röhrbein, florian.roehrbein@informatik.tu-chemnitz.de

Requirements:

- Programming skills in C# and C++.
- Ability to work effectively in a team.