



Kolloquium zur Masterarbeit

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„The Effect of Speed and Distance of an Industrial Robot Arm on Human Trust, Comfort and Perceived Safety in Human-Robot Physical Collaboration”

The latest Human-Robot Collaboration (HRC) standard allows a person to operate an industrial robot arm within an operating area while maintaining their physical safety. The three key components of successful human-robot collaboration are trust, comfort, and perceived safety. However, it is important to understand the effects of industrial robotic arm's attributes such as speed and distance on human trust, comfort, and perceived safety. To this end, in this study the impact of the industrial robot arm's approaching speed and stopping distance on the aforementioned components while performing an HRC task is investigated.

A pre-test with 9 volunteers was conducted to understand how approaching speed and stopping distance of an industrial robot arm is related to human comfort and perceived safety in our HRC task's setting. From the pre-test, 2 approaching speeds and 2 stopping distances were selected for the final study. The final experiment was conducted with 24 participants and a factorial design of 2 (approaching speed) * 2 (stopping distance) was used. After each run, the level of trust, comfort, and perceived safety was measured, participant's movement was observed throughout the experiment and at last, they were interviewed. The results of the study show, that the stopping distance has more impact on human trust, comfort, and perceived safety than the approaching speed.

Dienstag, 30.08.2022, 13:00 Uhr

Videokonferenz: BBB <https://webconf.tu-clausthal.de/b/bas-3rd-3kj>