

Invitation to the Oral Examination – Department CE

For the occasion of his examination for a Doctoral Degree,

Shangding Gu

will present his dissertation entitled/on

Safe Reinforcement Learning to Make Decisions in Robotics

on Monday, 9th September 2024, at 5 pm CEST (Munich)

Attendance to the presentation is open to the public. The presentation will be in English.

The candidate, all members of the Examination Committee, and authorized examiners of the TUM School of CIT are invited to the presentation and subsequent oral examination.

The presentation and subsequent examination will take place online via Zoom:

<https://tum-conf.zoom-x.de/j/61079371743?pwd=m6P1Q55royP52QVCMJtbhWt2l8kLnT.1>

Meeting-ID: 610 7937 1743

Kenncode: tum

Examination committee:

Chair: **Prof. Martin Bichler**

First Examiner: **Prof. Alois Knoll**

Second Examiner: **Prof. Jun Wang, University College London**

Garching, 1st August 2024

Mailing list:

Members of the examination committee

Doctoral candidate

Abstract:

Reinforcement Learning (RL) has demonstrated remarkable efficacy. Nevertheless, the widespread adoption of RL techniques remains predominantly confined to simulated environments, primarily due to safety concerns. To handle the inherent limitations of RL, safe RL has emerged as a critical area, particularly in robotics. To handle the above challenges, we propose multifaceted approaches for robot RL: efficiency to ensure safety, multifunctionality to satisfy multi-objective requirements, cooperation to work with other robots, and robustness to carry out tasks in uncertain environments.