Module name	**Robot learning**
Module number	CMS-TRK-RL
Senior Lecturer	Prof. Dr. Roberto Calandra roberto.calandra@tu-dresden.de
Qualification objectives	Students have in-depth knowledge of machine learning methods in robotics and are able to apply machine learning methods independently in robotics. They can mathematically describe machine learning problems in robotics, implement algorithms to solve these problems themselves, and empirically quantify the application of these algorithms in the context of specific applications.
Contents	The content of the module is the foundation of classical control theory, machine learning methods in robotics, such as optimisation, supervised learning for robotics and reinforcement learning, and problems and applications of machine learning methods in robotics, such as navigation, manipulation, locomotion and multi-agent systems.
Forms of teaching and learning	The module includes lectures of 2 SWS, exercises of 2 SWS and self-study. The language of the lectures and exercises will be English.
Eligibility for participation	No knowledge is required.
Usability	In the Masters Course Computational Modeling and Simulation, the module is a compulsory optional module in Track Applied Artificial Intelligence and in Track Computational Life Science, to be selected in accordance with Annex 2 to the Specific Examination Regulations. The module cannot be chosen in the Master's Course Computational Modeling and Simulation if this or a module with substantially the same content from a Course with which the entry conditions under § 3 of the Studienordnung have been met has already been completed. The module provides the pre-requisites for the modules it designates under the pre-requisites for participation.
Conditions for the award of credits	Credits are awarded when the module test is passed. The module test consists of a 90-minute away day. The language of the test will be English.
Credits and marks	The module allows 5 credit points to be obtained. The module score corresponds to the test performance score.
Frequency of the module	The module is offered every summer semester.
Workload	The total workload is 150 hours.
Duration of the module	The module covers 1 semester.