Module name	**Deep Learning for Vision – Foundations and Applications**
Module number	CMS-TRK-DLVFA
Senior Lecturer	Prof. Dr. Martin Weigert martin.weigert@tu-dresden.de
Qualification objectives	Students are familiar with deep-learning architectures for vision and with scientific applications such as object recognition, tracking and segmentation. They are able to implement and train deep learning models to target modern methods to their own image processing problems.
Contents	The content of the module includes basic concepts of deep learning for image content, including fundamental architectures such as CNN and VIT, as well as training paradigms such as supervised and unsupervised. Other content includes applications in different scientific disciplines as well as the practical implementation of these methods.
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	Basic skills in linear algebra, computer programming and bachelor-level machine learning are required.
Usability	In the Computational Modeling and Simulation Masters Course, the module is a compulsory voting module in Track Computational Life Science, Track Visual Computing and Track Applied Artificial Intelligence, 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 winter semester.
Workload	The total workload is 150 hours.
Duration of the module	The module covers 1 semester.