Module name	**Team Assignment AI Hardware**
Module number	CMS-TRK-TEA-AIH
Senior Lecturer	Prof. Dr. Christian Georg Mayr christian.mayr@tu-dresden.de
Qualification objectives	Students are able to work on a complex research-related project that requires competences from several areas of applied artificial intelligence, including hardware software design. Students are able to solve a larger, typically interdisciplinary, challenge within a group from the field of applied artificial intelligence, including the implementation of AI algorithms to a given accelerator architecture. They are proficient in literature research and the use of scientific information sources, and have both in-depth expertise and extensive methodological and interpersonal skills in project management and teamwork.
Contents	The module will analyse a practical problem definition from the field of machine learning as well as the implementation of the algorithm on a given accelerator architecture. The optimisation of the algorithm on the accelerator, for example in terms of structural and dynamic savings, data flow or quantification, as well as the implementation and analysis of the optimisation in terms of effectiveness and impact on problem definition and application.
Forms of teaching and learning	The module includes 8 SWS projects and self-study. The language of the projects will be English.
Eligibility for participation	Skills on algorithms and data structures, linear algebra, accelerator architectures, e.g. from VL DNN hardware and hardware-related (embedded) programming at bachelor's level, are required.
Usability	In the Computational Modeling and Simulation Masters Course, the module is a compulsory voting module in the 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 complex performance of 60 hours. The language of the test will be English.
Credits and marks	The module allows for the award of 10 credit points. The module score corresponds to the test performance score.
Frequency of the	The module is offered every summer semester.

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Workload	The total workload is 300 hours.
Duration of the module	The module covers 1 semester.