

Module Artificial Intelligence

Module Name: Artificial Intelligence 2

Module Number	X4M 2350	Level	Master	Short Name	AI2
Responsible Lecturers	Prof. Dr. Achim Schweikard				
Department, Facility	UZL, Institute for Robotics				
Course of Studies	Biomedical Engineering, Master				
Compulsory/elective	Elective	ECTS Credit Points	4		
Semester of Studies	2	Semester Hours per Week	3		
Length (semesters)	1	Workload (hours)	120		
Frequency	WiSe	Presence Hours	45		
Teaching Language	English	Self-Study Hours	55 + 20 exam prep.		
Consideration of Gender and Diversity Issues	<input checked="" type="checkbox"/> Use of gender-neutral language (THL standard) <input type="checkbox"/> Target group specific adjustment of didactic methods <input type="checkbox"/> Making subject diversity visible (female researchers, cultures etc.)				
Applicability	Biomedical Engineering				
Remarks	None				

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Course 1: Artificial Intelligence 2 Lecture and Exercise

Course Number		Short Name	AI2
Course Type	Lecture and exercise	Form of Learning	Presence
Mandatory Attendance	X	ECTS Credit Points	4
Participation Limit	None	Semester Hours per Week	3
Group Size (practical training, exercises, ...)	None	Workload (hours)	120
Teaching Language	English	Presence Hours	45
Study Achievements („Studienleistung“, SL)	None	Self-Study Hours	55 + 20 exam prep.
SL Length (minutes)	n. a.	SL Grading System	n. a.
Exam Type	Written exam	Exam Language	English
Exam Length (minutes)	90	Exam Grading System	One-third Grades
Learning Outcomes	<p>The students are able to choose a method for machine learning for a given application amongst a variety of such methods. The chosen method can be customized to the needs of the application. The process of customization goes well beyond straightforward search of parameters and involves adjustments to the basic mathematical techniques. This leads to innovative applications for machine learning, designed and implemented by the students. The starting point are support vector machines.</p>		
Participation Prerequisites	None		
Contents	<p>Support Vector Machines and Dualization Classification Regression Time-Series Prediction Lagrange Multipliers Sequential Minimal Optimization Geometric Reasoning</p>		
Literature	P. Norvig, S. Russell: Künstliche Intelligenz – München: Pearson 2004		
Remarks	None		