

Module title		Abbreviation
Game Research Lab - Theory		10-I=GRLT-182-m01
Module coordinator		Module offered by
holder of the Chair of Computer Science IX		Institute of Computer Science
ECTS	Method of grading	Only after succ. compl. of module(s)
10	numerical grade	--
Duration	Module level	Other prerequisites
1 semester	graduate	--
Contents		
<p>The Game Research Labs are project-oriented, master-level courses. In accordance with the definition of Games Engineering, they concern themselves with the effective provision and the systematic application of principles, methods and tools for the development and application of comprehensive software systems for computer games. There are four different directions of Game Research Labs: Theory, Applications, Design and Architecture. All of them implement a scientific process during which the students develop a project based on preceding works and a novel idea or hypothesis worthwhile exploring. Typical steps in a Game Research Lab include a short literature survey, the development of a concept, its realisation and evaluation. Theoretical foundations of Games Engineering as well as their transfer and application are the focus of the "Game Research Lab - Theory". This comprises the application, extension and innovation of formal representations, mathematics, algorithmics, for instance in the areas of computer graphics, realtime physics computation or artificial intelligence. The application, adaptation and innovation of optimisation approaches, formal process descriptions and verification in the context of interactive simulations also lie in the scope of this Game Research Lab.</p>		
Intended learning outcomes		
<p>We recommend previous completion of basic courses in Games Engineering such as Interactive Computer Graphics, Asset Development and Interactive Artificial Intelligence. The Game Research Labs empower the students to retrace current scientific works in great detail, to improve their research skills and to deepen their expertise with respect to specific challenges in Games Engineering. Formal systems and their applications to challenges in Games Engineering are the focus of the "Game Research Lab - Theory". Accordingly, the students will deeply immerse themselves into relevant topics in order to learn about, understand and learn to apply existing theoretical approaches. Their application to the respective challenges will foster the students' knowledge and competencies in theory and Games Engineering.</p>		
Courses (type, number of weekly contact hours, language — if other than German)		
R (4)		
Method of assessment (type, scope, language — if other than German, examination offered — if not every semester, information on whether module is creditable for bonus)		
<p>project report (10 to 15 pages) and presentation of project (15 to 30 minutes) Language of assessment: German and/or English creditable for bonus</p>		
Allocation of places		
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Additional information		
<p>Focuses available for students of the Master's programme Informatik (Computer Science, 120 ECTS credits): GE. Cf. Section 3 Subsection 3 Sentence 8 FSB (subject-specific provisions).</p>		
Workload		
300 h		
Teaching cycle		
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Referred to in LPO I (examination regulations for teaching-degree programmes)		
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Module appears in

Master's degree (1 major) Computer Science (2018)

Master's degree (1 major) Computer Science (2021)

Master's degree (1 major) Computer Science (2023)