

Geometric Data Structures

(in German: Geometric Data Structures -)

Module-ID: FIN-INF-102206

Link:	LSF
Responsibility:	Prof. Dr. Stefan Schirra
Lecturer:	Prof. Dr. Stefan Schirra
Classes:	• Lecture <i>Geometric Data Structures</i> • Exercises <i>Geometric Data Structures</i>
Applicability in curriculum:	

Abbreviation	Credit Points	Semester	Term	Duration	Language	Level
GeomDS	6	Summer	ab 1.	1 Semester	english	Master

Intended learning outcomes:

Students learn how to design, analyze and apply data structures for geometric problems.

Content:

- heap data structures,
- balanced binary search trees,
- self-organizing data structures,
- amortized analysis,
- interval, range and segment trees,
- augmented data structures,
- quad-trees,
- fractional cascading,
- point location data structures,
- persistent data structures,
- making data structures dynamic.

Workload:

56h in presence + 124h self-study

Type of examination:	Teaching method / lecture hours per week (SWS):
oral exam	• Lecture (3SWS) • Exercises (1SWS)
Prerequisites according to examination regulations:	Recommended prerequisites:
keine	Basics in algorithmics
Media:	Literature:
	• Samet: Foundations of Multidimensional and Metric Data Structures. • Zachmann, Langetepe: Geometric Data Structures for Computer Graphics. • Mehta, Sahmi: Handbook of Data Structures and Applications • Morin: Open Data Structures: An Introduction

Comments:

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