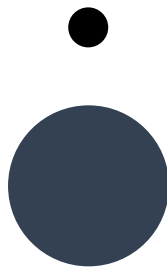


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**Hochschule Konstanz**  
University of Applied Sciences



**Course number: MSI 30520**  
**Computational Geometry**  
**Study Level: Master / Graduate**

**Prof. Dr. Georg Umlauf**  
**Language of instruction: English**  
**ECTS Credits: 5**

For applications in computer-aided design (CAD), geographic information systems (GIS), or computer graphics various geometric properties and relations of the 3d objects in the data set (e.g. points, lines, triangles, etc.) need to be computed. These relations are for example what are two points that are closest to each other or which objects collide or intersect each other. Since the number of points or objects in the data set might be huge, the relevant algorithms need to be tuned with respect to runtime and memory consumption.

In this module techniques, algorithms, and data structures to solve geometric problems for computer graphics, CAD, GIS and robotics for industrial and technical applications are presented. In the accompanying lab-assignments examples and case studies for these techniques will be implemented by the students.

