

MATHEMATIKKOLLOQUIUM

Das Institut für Mathematik lädt zu folgendem Vortrag ein:

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Recent Results and Open Problems On Straight Skeletons

A skeleton of a shape P is a retraction of P to a lower-dimensional structure that carries certain geometric and topological information of P . Skeleton structures, such as the Voronoi diagram resp. the medial axis, play a fundamental role in the field of computational geometry (CG). Many problems in CG - e.g., robot-motion planing, tool-path computation, or road-network extraction from geographic maps - become significantly easier once access to certain geometric and topological features of the underlying shape has been gained.

In this talk we first give a general introduction to skeleton structures in CG. The main focus will then be put on the so-called straight skeleton. The straight skeleton of a simple polygon has been introduced by Aurenhammer et al. almost 20 years ago. Since then many applications have been presented in various research areas such as computer-aided design, geographical information systems, medical imaging, roof construction, or mathematical origami. The major part of this talk will deal with a geometric characterization of straight skeletons that (i) gives us a better insight into the geometric nature of straight skeletons and (ii) motivates an efficient algorithm that improved runtime and memory efficiency of the previous state-of-the-art code by a few orders of magnitude for typical real-world data. Finally, we will present an outlook to open research questions related to straight skeletons.

Zeit: Dienstag, den 15. Januar 2013 um 17:15 Uhr

Ort: Container, Technikerstraße 19a, SR Container 2

Gäste sind herzlich willkommen!

Eva Kopecká