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MADALGO seminar by Mark de Berg, Technische Universiteit Eindhoven

Kinetic Data Structures in the Black-Box Model

Abstract:

Over the past decade, the kinetic-data-structures framework has become the standard in computational geometry for dealing with moving objects.

A fundamental assumption underlying the framework is that the motions of the objects are known in advance. This assumption severely limits the applicability of KDSs. In this talk I will discuss some of the recent work on KDSs in the so-called black-box model, which is a hybrid of the KDS model and the traditional time-slicing approach. In this more practical model we receive the position of each object at regular time steps and we have an upper bound on the maximum displacement of any object in one time step.

Joint work with Marcel Roeloffzen and Bettina Speckmann