



Computational Geometry

ENS de Lyon - [Master 2](#) - CR02

Lecturers: [Olivier Devillers](#) and [Monique Teillaud](#)

The goal of this class is to present *classical* computational geometry and its limitations: worst-case optimal algorithms are too complex, degenerate inputs are not well handled, floating-point computations create inconsistencies.

The course will review solutions used to address these limitations: randomization, probabilistic analysis, exact computation paradigm.

The algorithmic techniques will be presented on a specific problem: constructing triangulations of a point set.

Applications such as reconstruction algorithms and meshing will be sketched.

Finally, recent developments about computational geometry in non-Euclidean spaces will be presented.

Prerequisites

Basic background about algorithms and complexity (sorting algorithms, binary search trees, graphs,...).