Motivation
Robot collision detection and motion planning algorithms become substantially more efficient when a convex decomposition of all 3D models is available. For some tasks, such as online collision avoidance, this is even essential to guarantee real-time performance.

Task
You will implement and evaluate a convex decomposition algorithm in C++. For this, knowledge of linear algebra very helpful. (Test questions: How can you check whether two lines intersect in 3D? How do you implement this with limited precision numbers on a CPU, avoiding division by zero? In which cases can two triangles intersect in 3D?)

For a master thesis, you will additionally experiment with your own ideas to improve the efficiency and quality of the algorithm.

This topic is especially recommended to students interested in on-going research, you can directly interact and discuss your ideas with researchers.

Contact
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