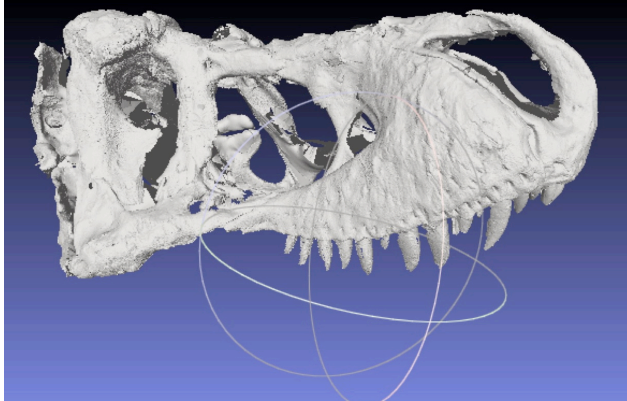


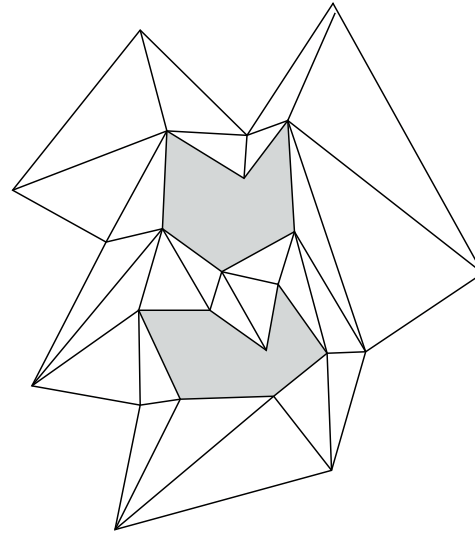
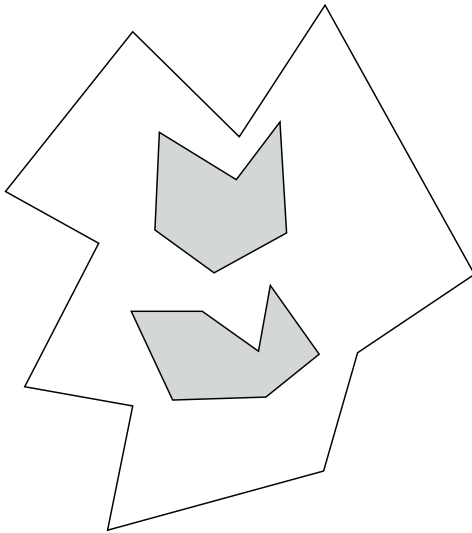
499 Project David Rappaport

Triangulation for Mesh Generation



Computer assisted design and manufacturing (CAD/CAM) has applications in some non-traditional fields. One of them is a digital production of museum specimens like the T. Rex Skull shown to the left. This is an image of a very dense triangle mesh consisting of millions of triangles. In the process of producing the specimens there are numerous requirements for efficient algorithms to manipulate these meshes.

This project involves a study of methods to compute a triangulation of a simple polygon with holes.



On the left a simple polygon with holes and on the right the same polygon triangulated.

Students taking on this project will be required to explore whether there are existing packages available, or whether a custom designed solution is needed to obtain a C++ implementation of an algorithm that can perform this triangulation efficiently.

Skills that I am looking for are:

- Creativity
- Ability to program in C++
- Ability to understand a high level description of an algorithm and obtain a working implementation
- Ability to test their program and collect empirical data relevant to the project

Please note: I am currently on Sabbatical and away from Kingston until the end of term. I return in January, nevertheless in the interim I can respond to inquiries by email.