Project proposal for 02507, January 2010:

Mesh Segmentation Using
Markov Random Fields and Graph Cuts
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Mesh elements (vertices, faces or edges) can be segmented (partitioned) according to an attribute value (some scalar field, e.g. curvature) by means of an algorithm based on Markov Random Fields (MRF) [Lavoué and Wolf, 2008]. In that work Simulated annealing is used for the optimization method. However, discrete MRF segmentation can be solved more efficiently with the help of graph cuts [Kohli, 2007].

In this project we will segment mesh vertices according to the curvature values using graph cuts and MRF.

Illustration: Mesh segmentation taken from [Lavoué and Wolf, 2008], a 3D mesh model segmented into flat parts, curved parts and sharp edges.

References
