Voronoi Ball Models for Computational Shape Applications

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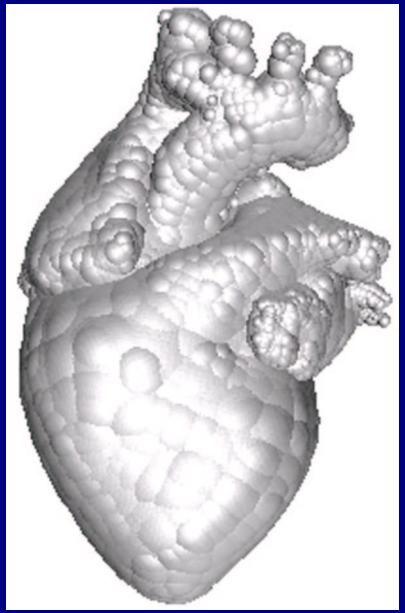
Voronoi Ball Models

A Voronoi ball model is composed of a subset of the circumscribing balls of the Delaunay tessellation computed from a set of boundary points of an object.



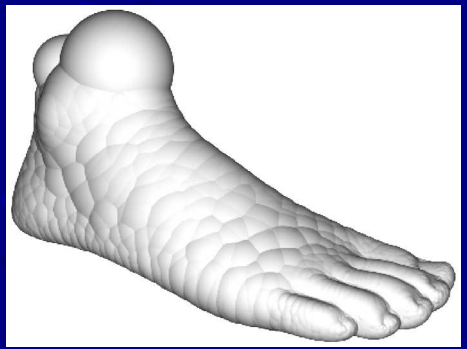
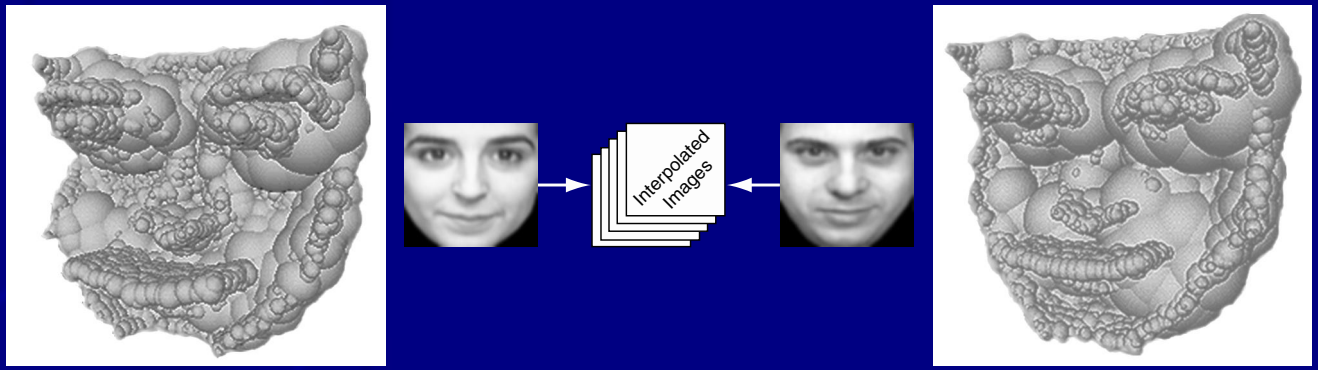
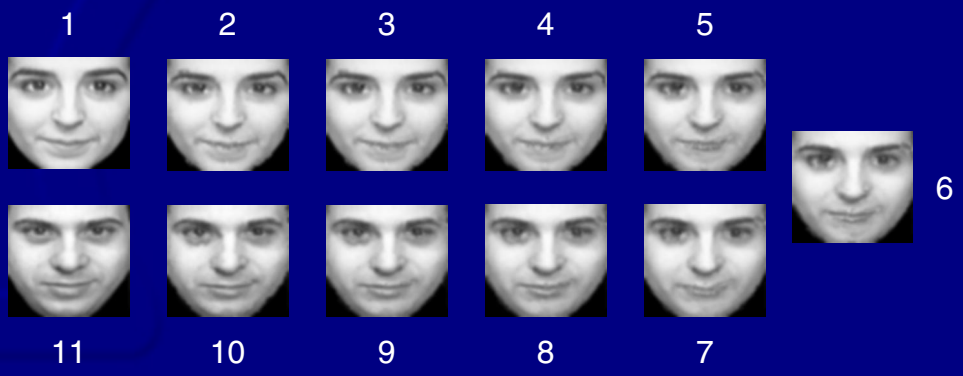
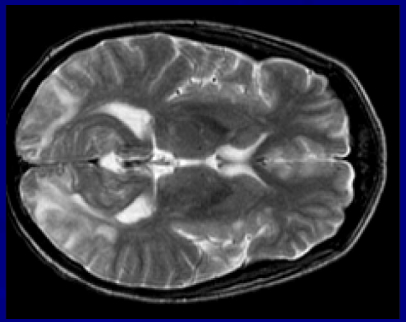


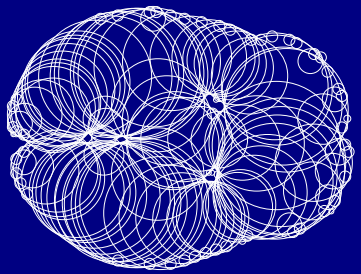
Image Matching and Interpolation

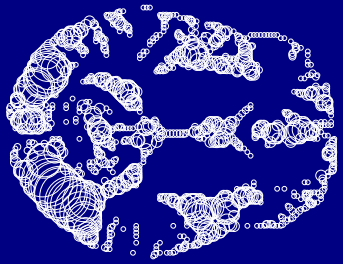




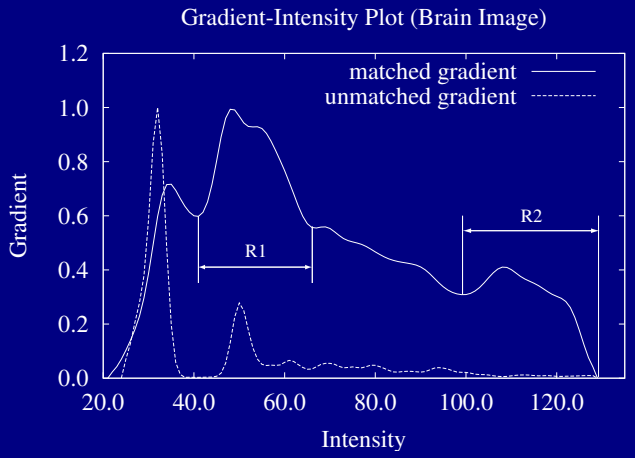
Shape Similarity Measure



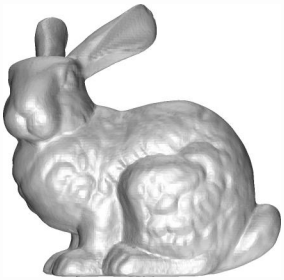




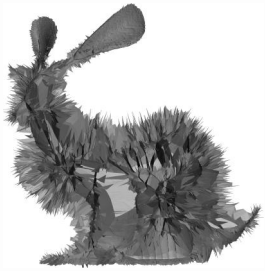
The method is able to extract accurate shape information from greyscale images by measuring the changes in shape as the intensity threshold is varied.



Medial Axis Shape Simplification



Surface Reconstructed from Boundary Points

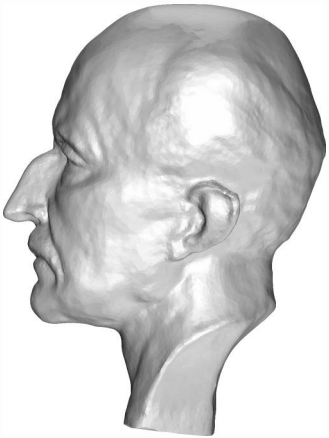


Original Medial Axis

Simplified Medial Axis

Strongly Simplified Medial Axis

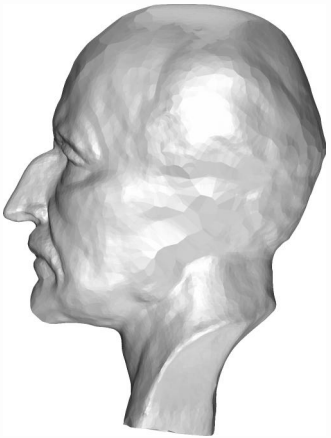
Surface Reconstructed from Strongly Simplified Axis



Original Model

Medial Axis

Medial Axis, Ear Removed



Reconstructed Surface