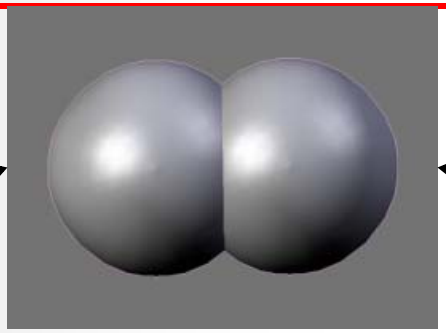
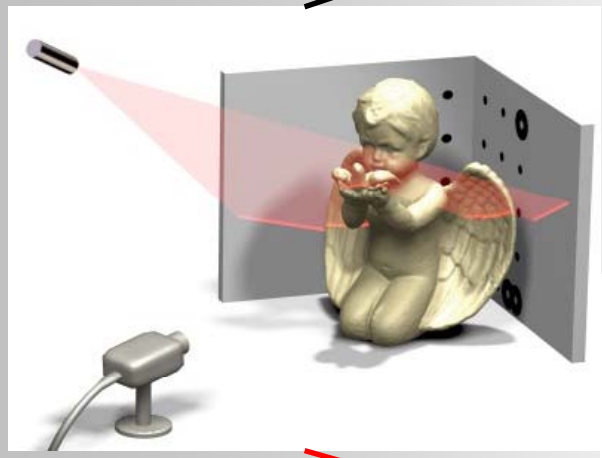
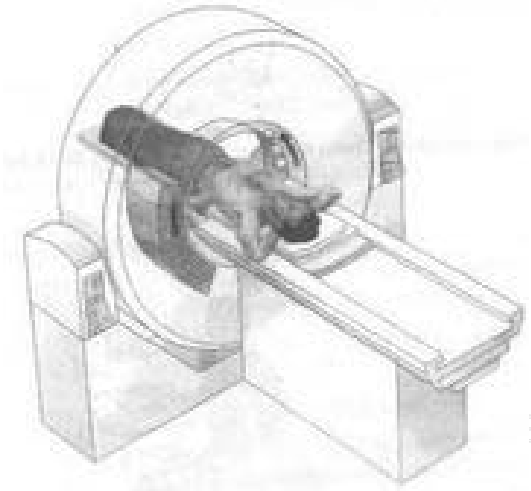
Universität Hamburg

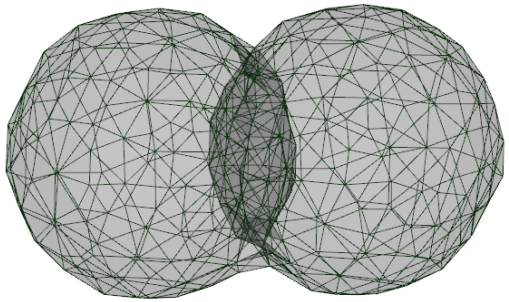
Surface Reconstruction

Digitalisierung

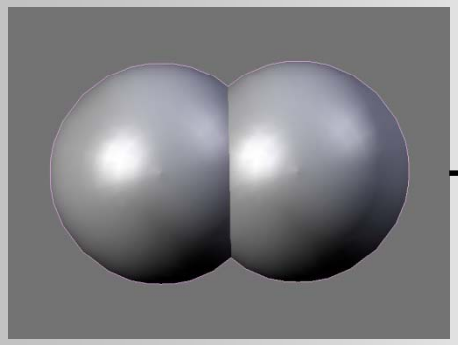




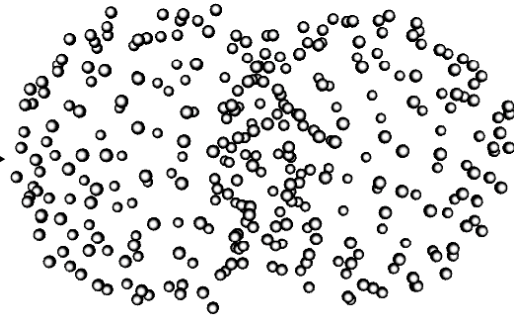




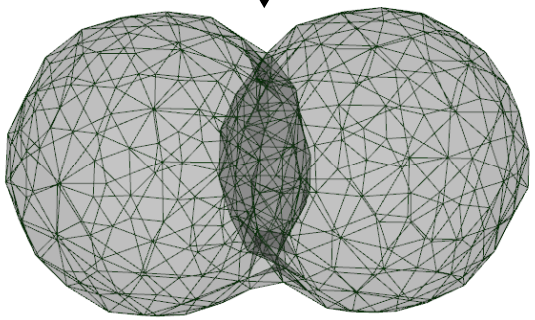
Digitalisierung



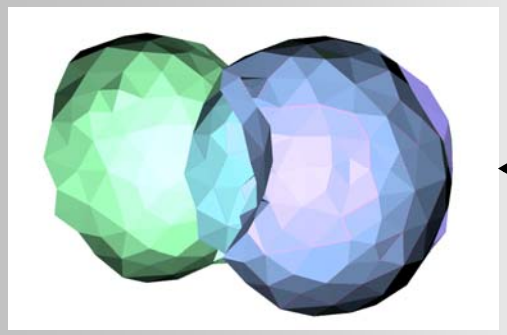
Abtastung



Rekonstruktion

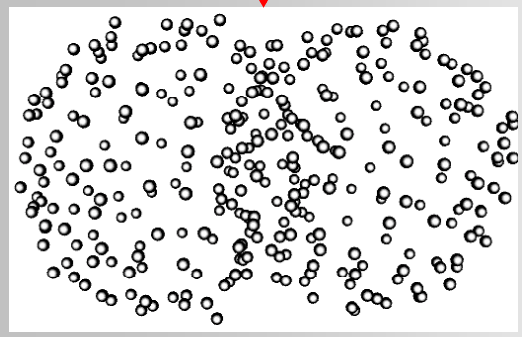


Anwendung

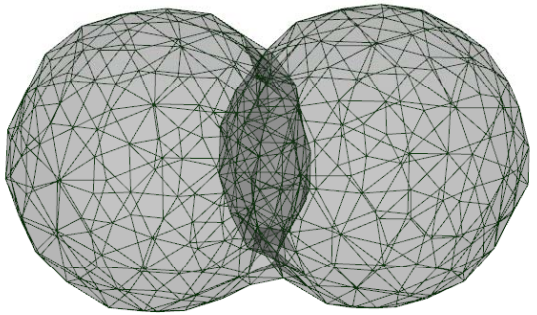


Rekonstruktion

Bedienungen an die Abtastung

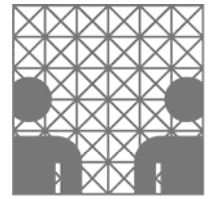


Beweisverfahren

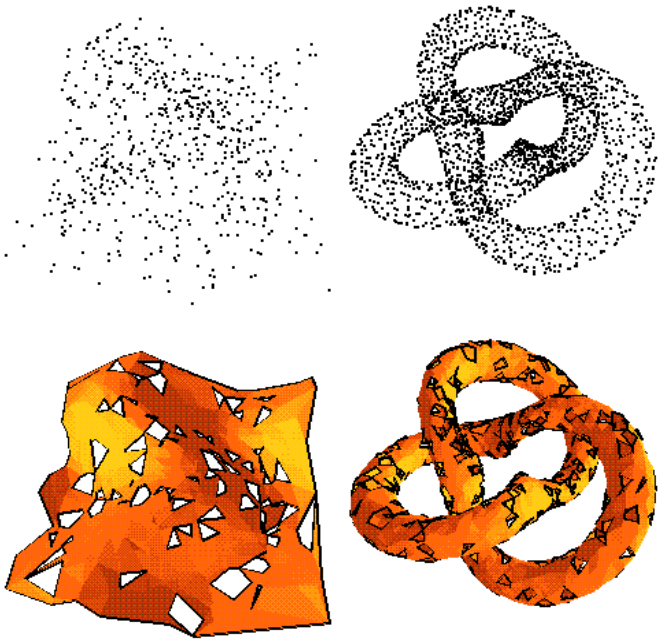


Methode

Surface Reconstruction

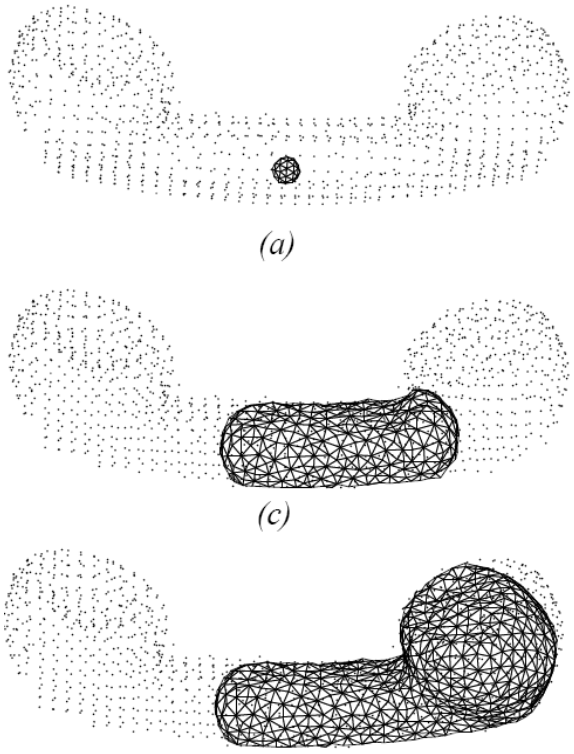


- **Computational Geometry**



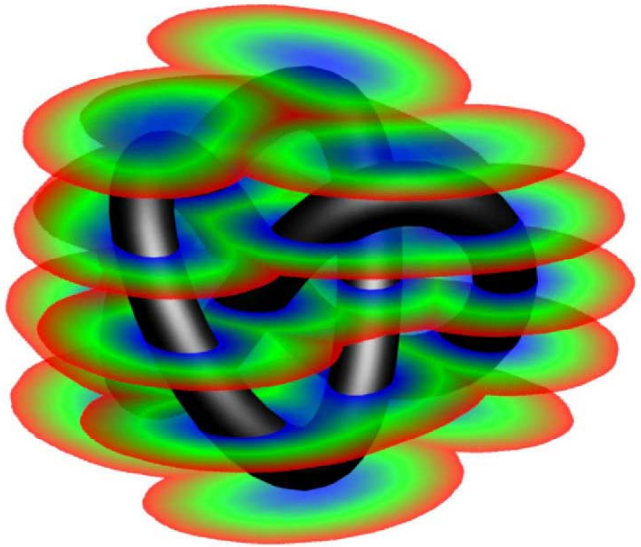
Surface Reconstruction

- **Computational Geometry**
- **Surface Fitting**



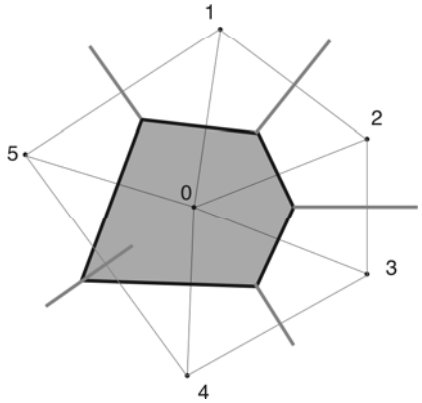
Surface Reconstruction

- Computational Geometry
- Surface Fitting
- Implicit Function Fitting



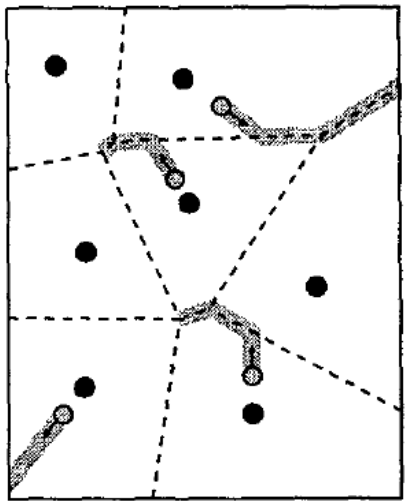
Computational Geometry

- **Voronoi Diagrams, Delaunay Triangulations and Alpha Shapes**



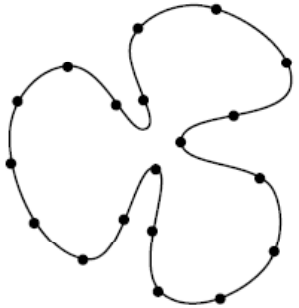
Computational Geometry

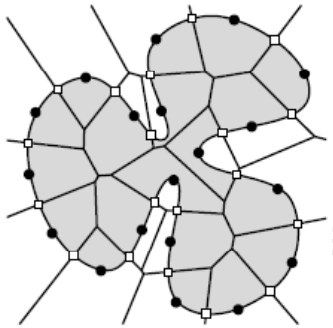
- **Voronoi Diagrams, Delaunay Triangulations and Alpha Shapes**
- **Flow Shapes**



Computational Geometry

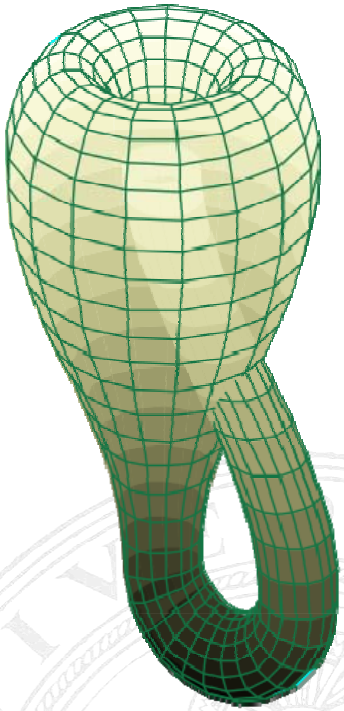
- **Voronoi Diagrams, Delaunay Triangulations and Alpha Shapes**
- **Flow Shapes**
- **r-Regular Shape Reconstruction**





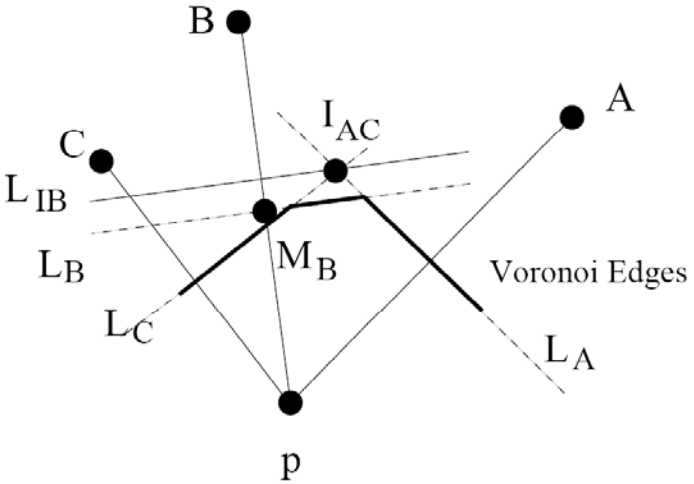
Computational Geometry

- Voronoi Diagrams, Delaunay Triangulations and Alpha Shapes
- Flow Shapes
- r-Regular Shape Reconstruction
- One Triangle at a Time



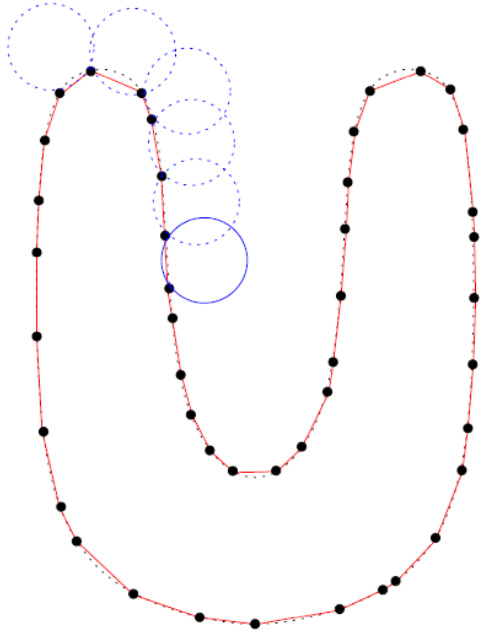
Computational Geometry

- **Voronoi Diagrams, Delaunay Triangulations and Alpha Shapes**
- **Flow Shapes**
- **r-Regular Shape Reconstruction**
- **One Triangle at a Time**
- **Lower Dimensional Localized Delaunay Triangulation**



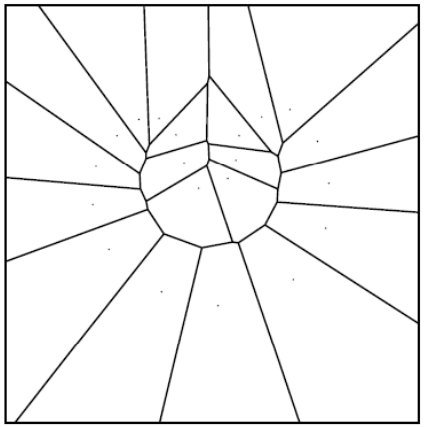
Computational Geometry

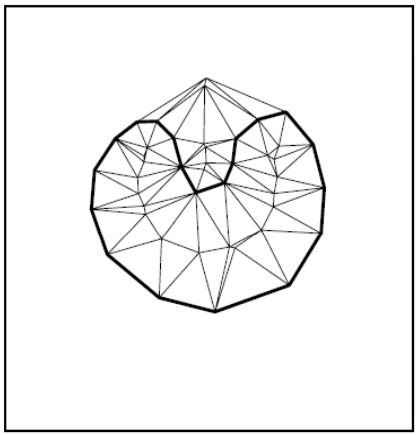
- Voronoi Diagrams, Delaunay Triangulations and Alpha Shapes
- Flow Shapes
- r-Regular Shape Reconstruction
- One Triangle at a Time
- Lower Dimensional Localized Delaunay Triangulation
- Ball Pivoting



Computational Geometry

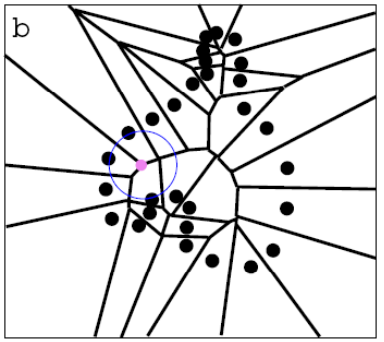
- Voronoi Diagrams, Delaunay Triangulations and Alpha Shapes
- Flow Shapes
- r-Regular Shape Reconstruction
- One Triangle at a Time
- Lower Dimensional Localized Delaunay Triangulation
- Ball Pivoting
- Crust

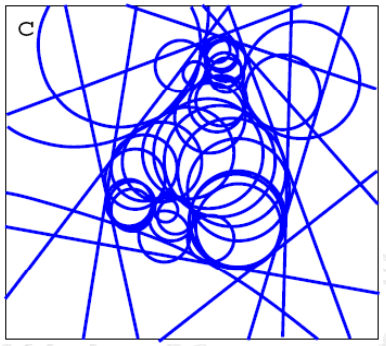


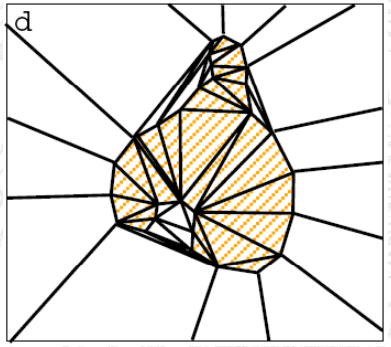


Computational Geometry

- Voronoi Diagrams, Delaunay Triangulations and Alpha Shapes
- Flow Shapes
- r-Regular Shape Reconstruction
- One Triangle at a Time
- Lower Dimensional Localized Delaunay Triangulation
- Ball Pivoting
- Crust
- Power Crust

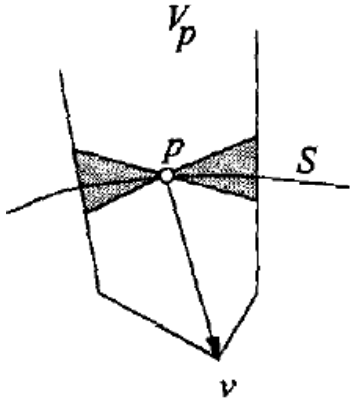


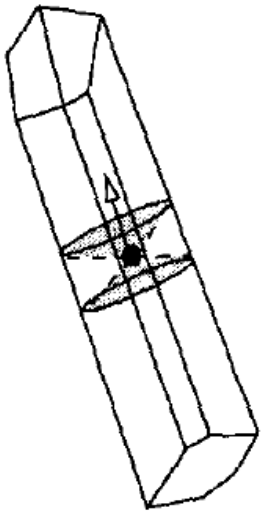




Computational Geometry

- Voronoi Diagrams, Delaunay Triangulations and Alpha Shapes
- Flow Shapes
- r-Regular Shape Reconstruction
- One Triangle at a Time
- Lower Dimensional Localized Delaunay Triangulation
- Ball Pivoting
- Crust
- Power Crust
- Cocone



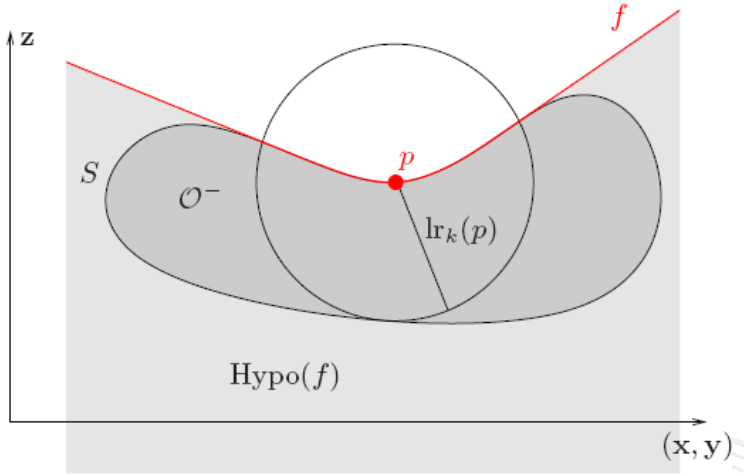


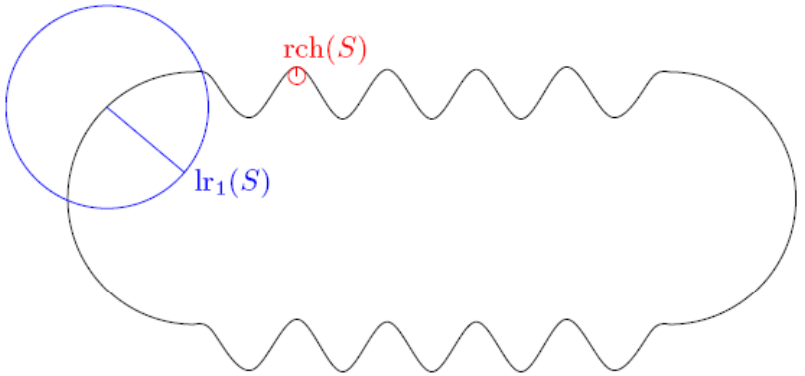
Computational Geometry

- Voronoi Diagrams, Delaunay Triangulations and Alpha Shapes
- Flow Shapes
- r-Regular Shape Reconstruction
- One Triangle at a Time
- Lower Dimensional Localized Delaunay Triangulation
- Ball Pivoting
- Crust
- Power Crust
- Cocone
- Homology of Submanifolds

Computational Geometry

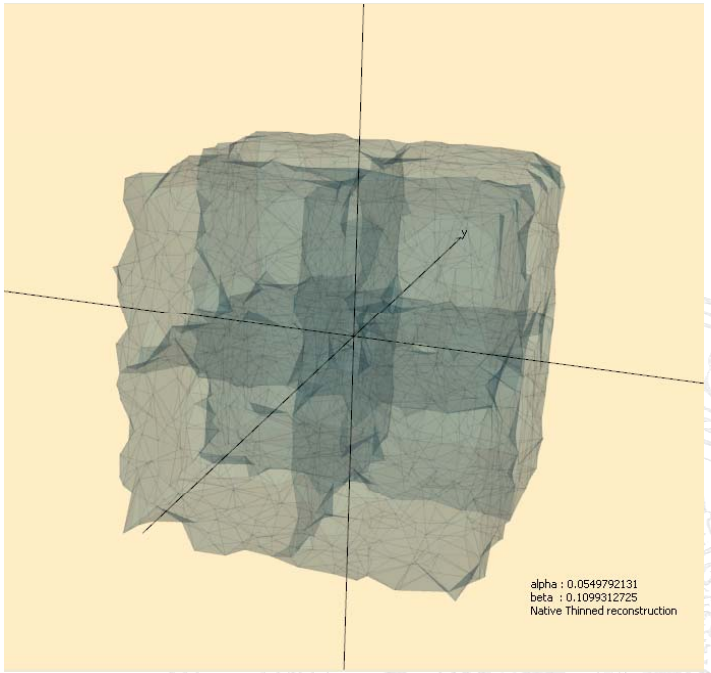
- Voronoi Diagrams, Delaunay Triangulations and Alpha Shapes
- Flow Shapes
- r-Regular Shape Reconstruction
- One Triangle at a Time
- Lower Dimensional Localized Delaunay Triangulation
- Ball Pivoting
- Crust
- Power Crust
- Cocone
- Homology of Submanifolds
- Lipschitz Surfaces





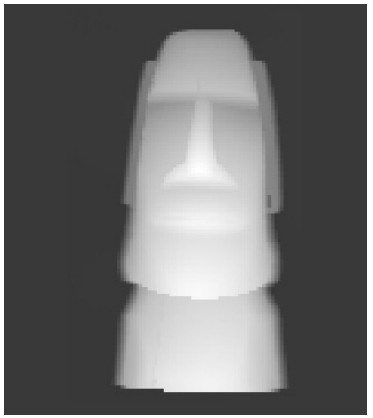
Computational Geometry

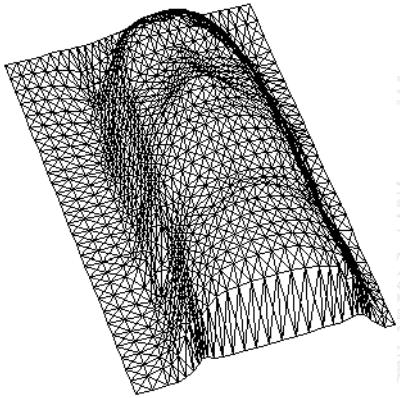
- Voronoi Diagrams, Delaunay Triangulations and Alpha Shapes
- Flow Shapes
- r-Regular Shape Reconstruction
- One Triangle at a Time
- Lower Dimensional Localized Delaunay Triangulation
- Ball Pivoting
- Crust
- Power Crust
- Cocone
- Homology of Submanifolds
- Lipschitz Surfaces
- r-Stable Reconstruction



Surface Fitting

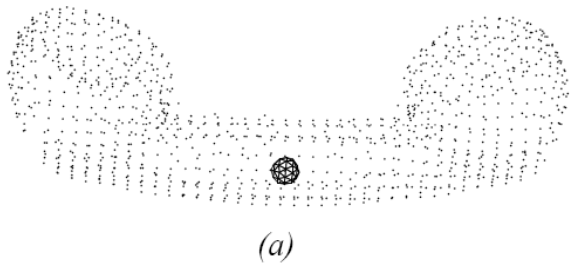
- **Adaptive Meshes**





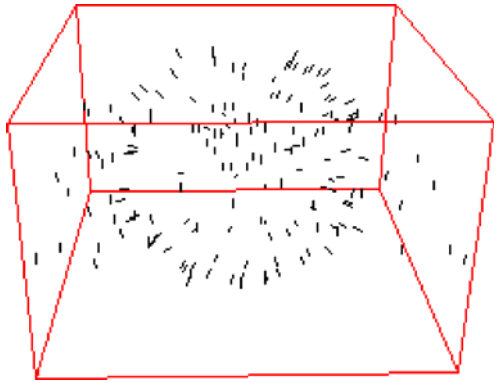
Surface Fitting

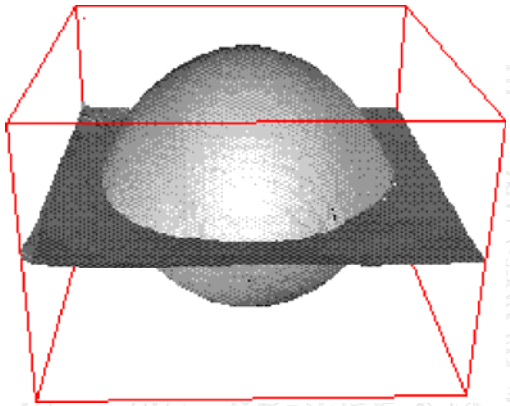
- **Adaptive Meshes**
- **Balloon Fitting**



Surface Fitting

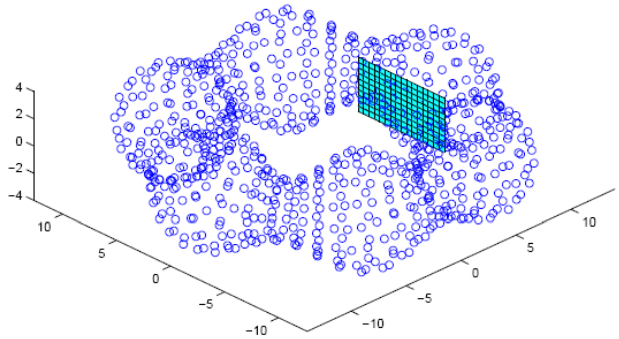
- Adaptive Meshes
- Balloon Fitting
- Surface Inferencing

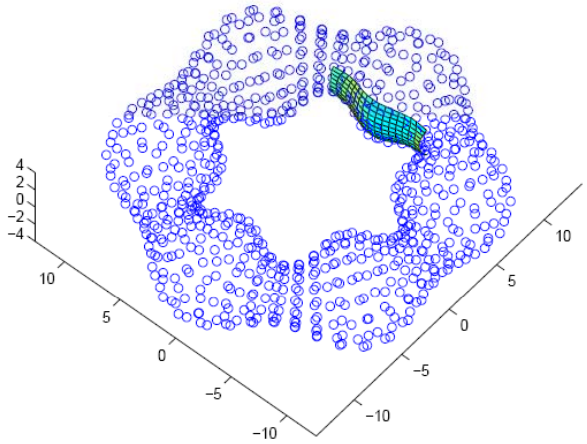




Surface Fitting

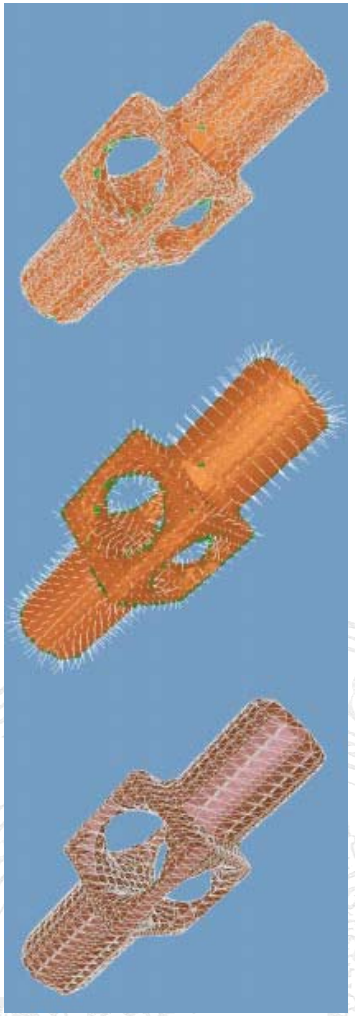
- Adaptive Meshes
- Balloon Fitting
- Surface Inferencing
- Moving Least Squares





Implicit Function Fitting

- **Surfaces from Unorganized Points**

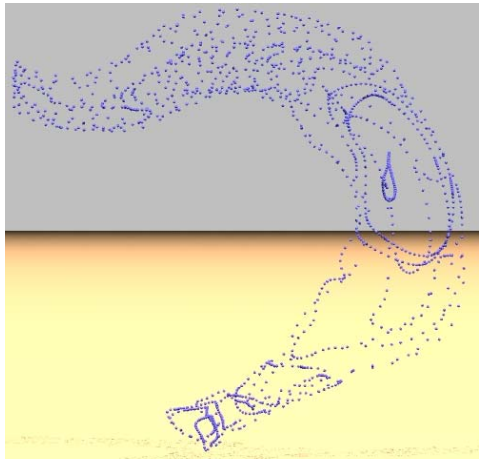


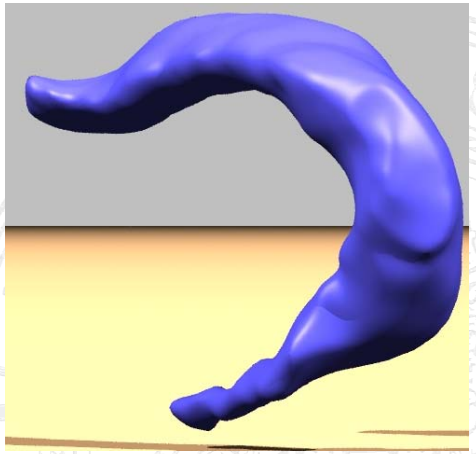
Implicit Function Fitting

- **Surfaces from Unorganized Points**
- **Radial Basis Functions**

Implicit Function Fitting

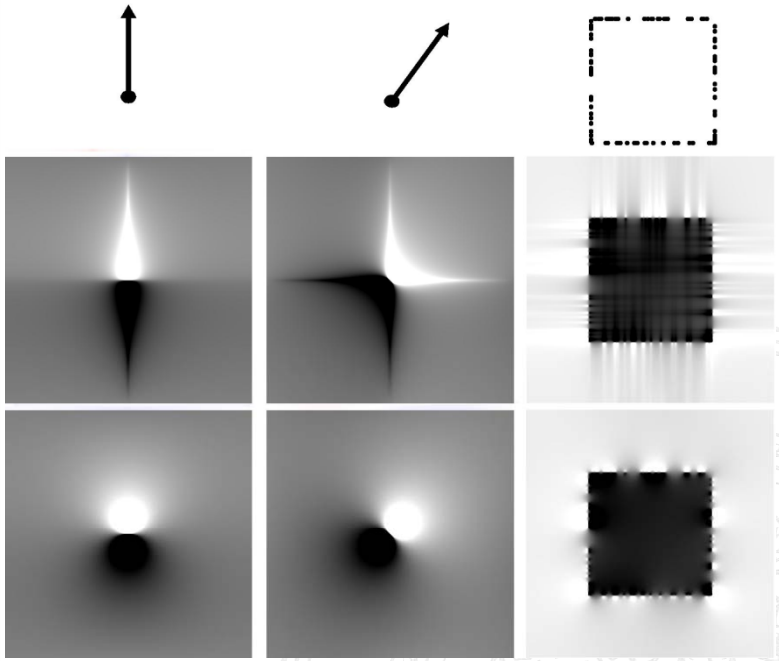
- Surfaces from Unorganized Points
- Radial Basis Functions
- Level Sets





Implicit Function Fitting

- Surfaces from Unorganized Points
- Radial Basis Functions
- Level Sets
- FFT-Based Reconstruction



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