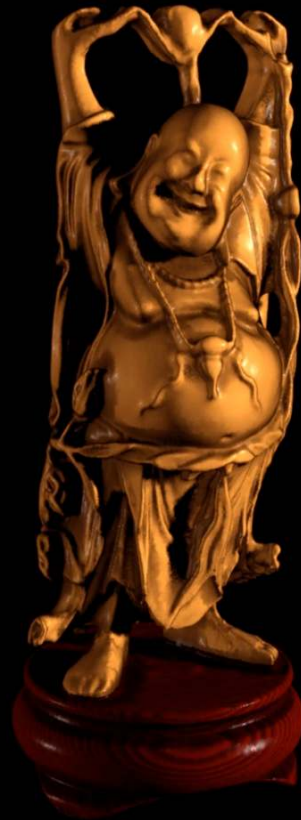# Zippered Polygon Meshes From Range Images

Greg Turk and Mark Levoy

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SIGGRAPH 94

Presented by John Novatnack

How Do We Construct 3D Meshes?

Range Images
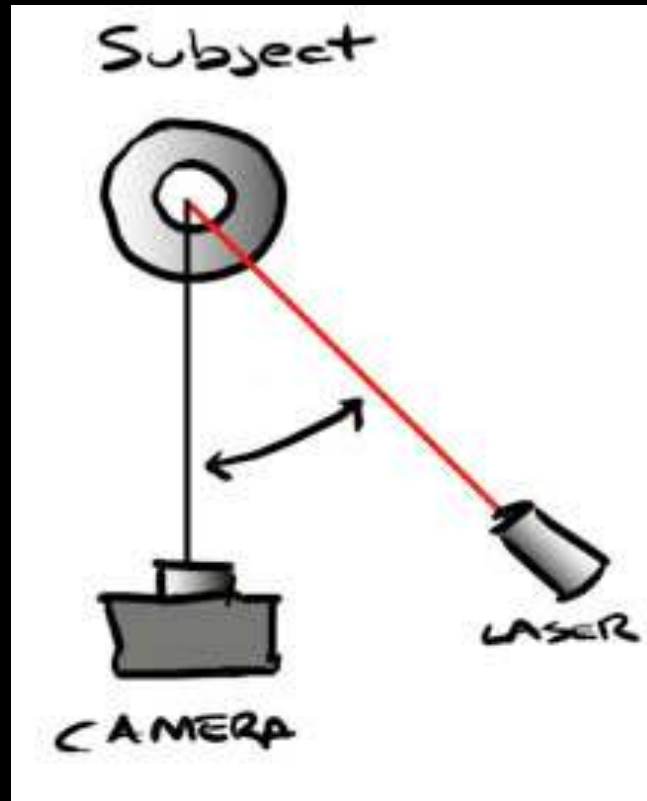
Acquiring Range Images

Range Scanner

Image coursey of http://www1.cs.columbia.edu/~atanas/research/scara/setup.jpg
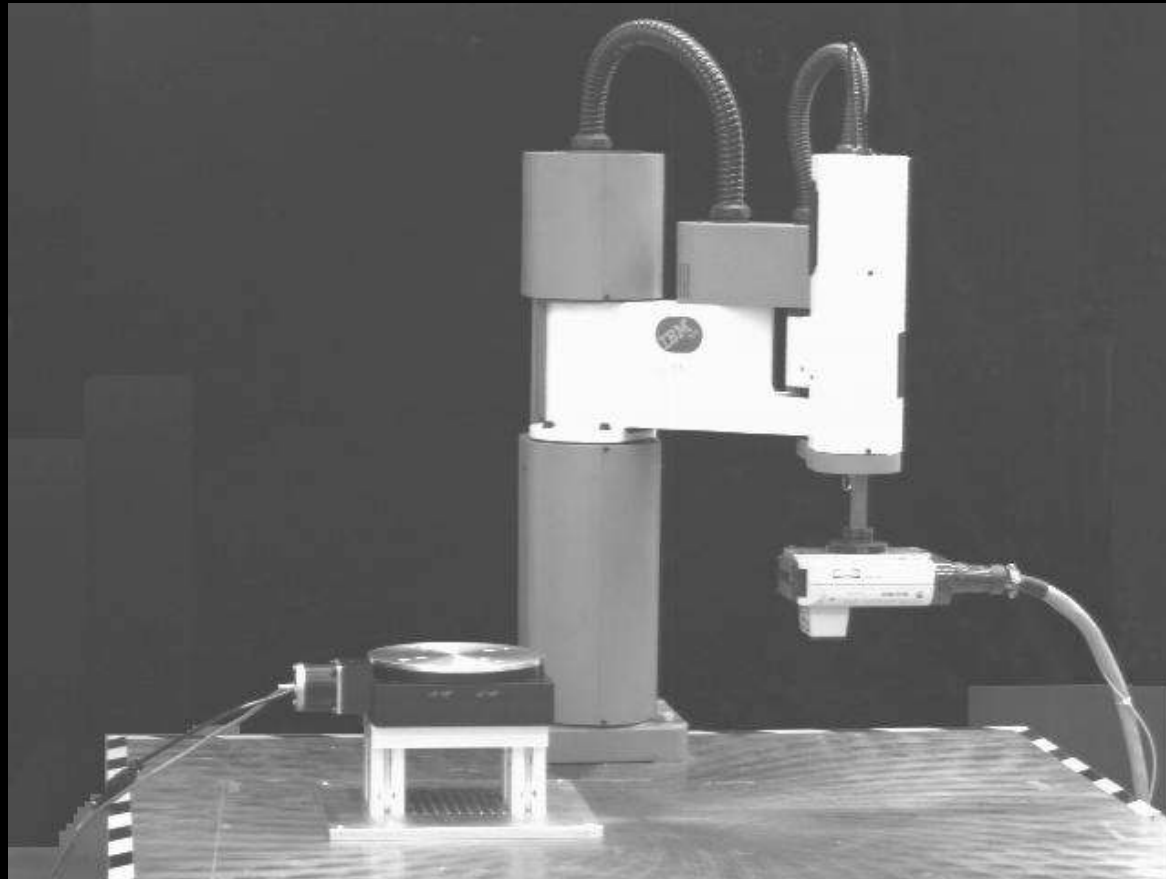
Paper Approach

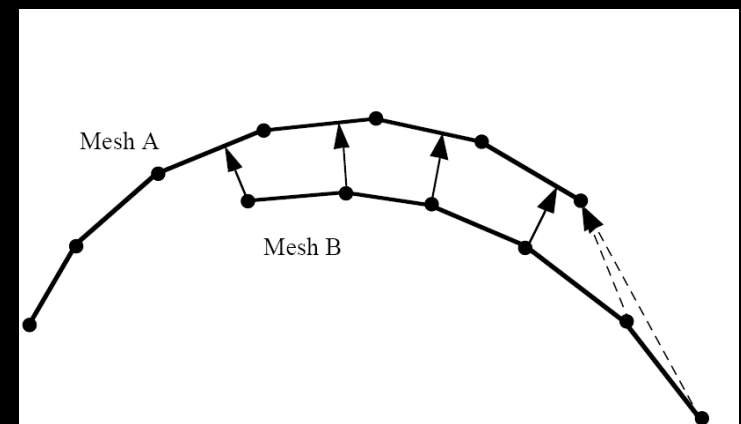1. Registration: Align range images
2. Integration: Zipper adjacent range images
3. Smoothing: Compute local weight averages

Registration: ICP

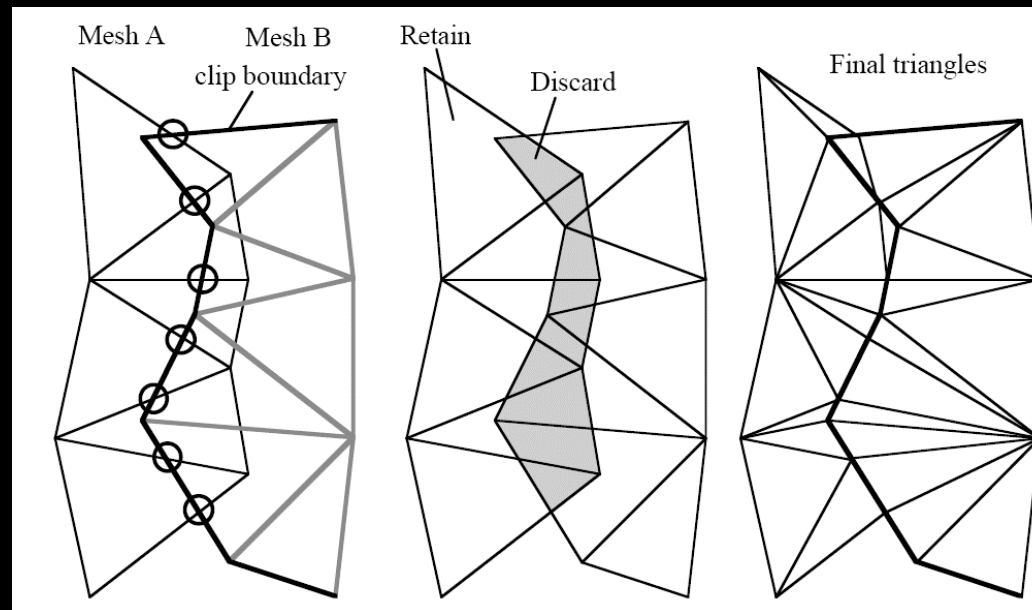ICP - iterative closet point

1. User crudely aligns range images
2. Algorithm "snaps" range images together
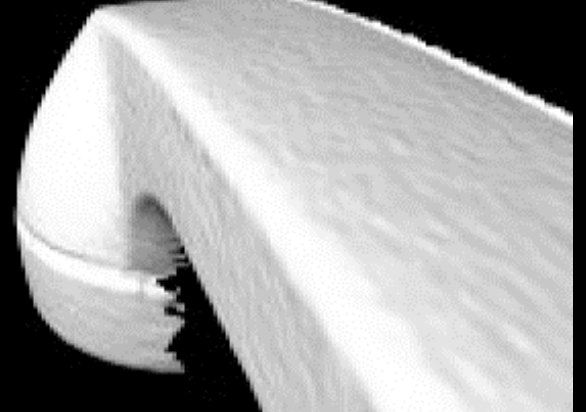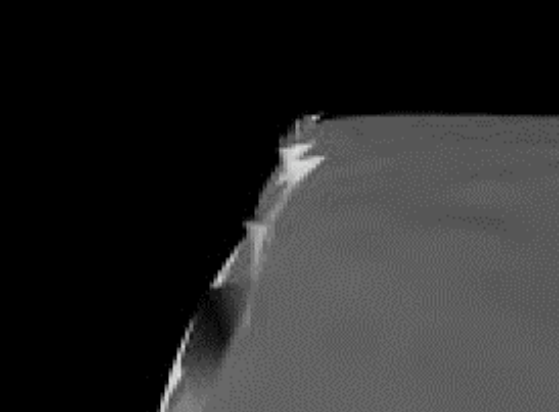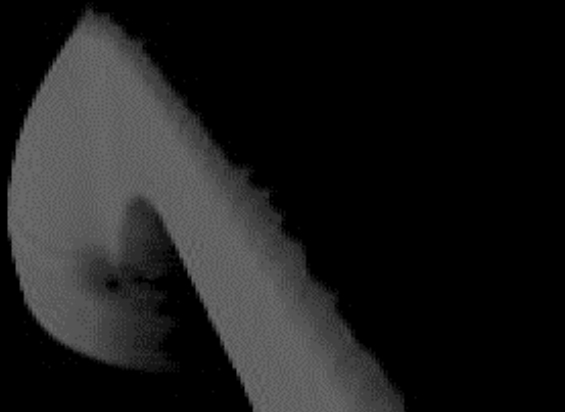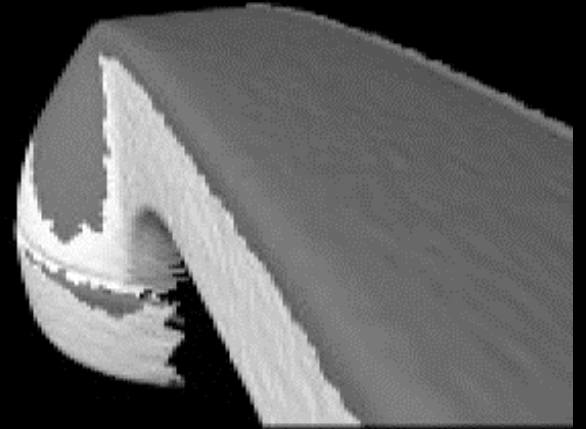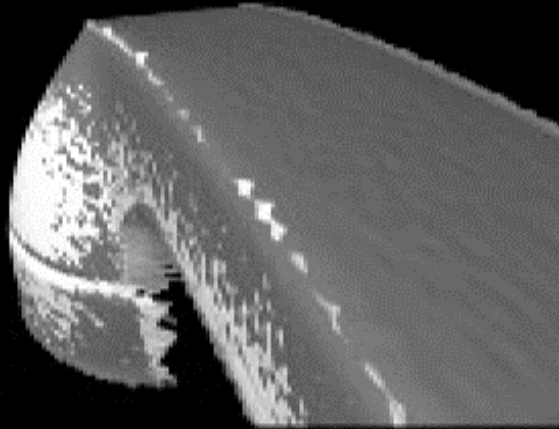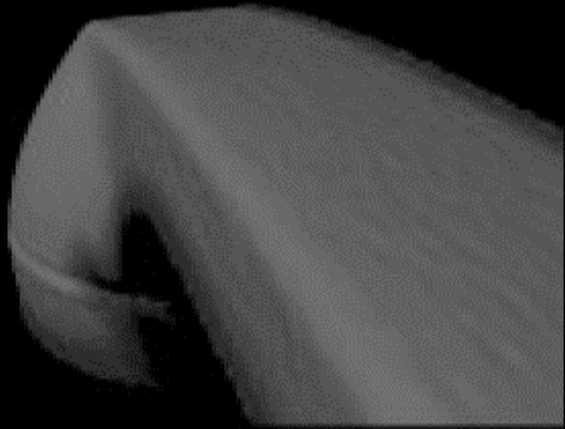   - Minimizes weighted least squares metric

Extremely effective!

Integration: Zippering

1. Remove overlap between meshes
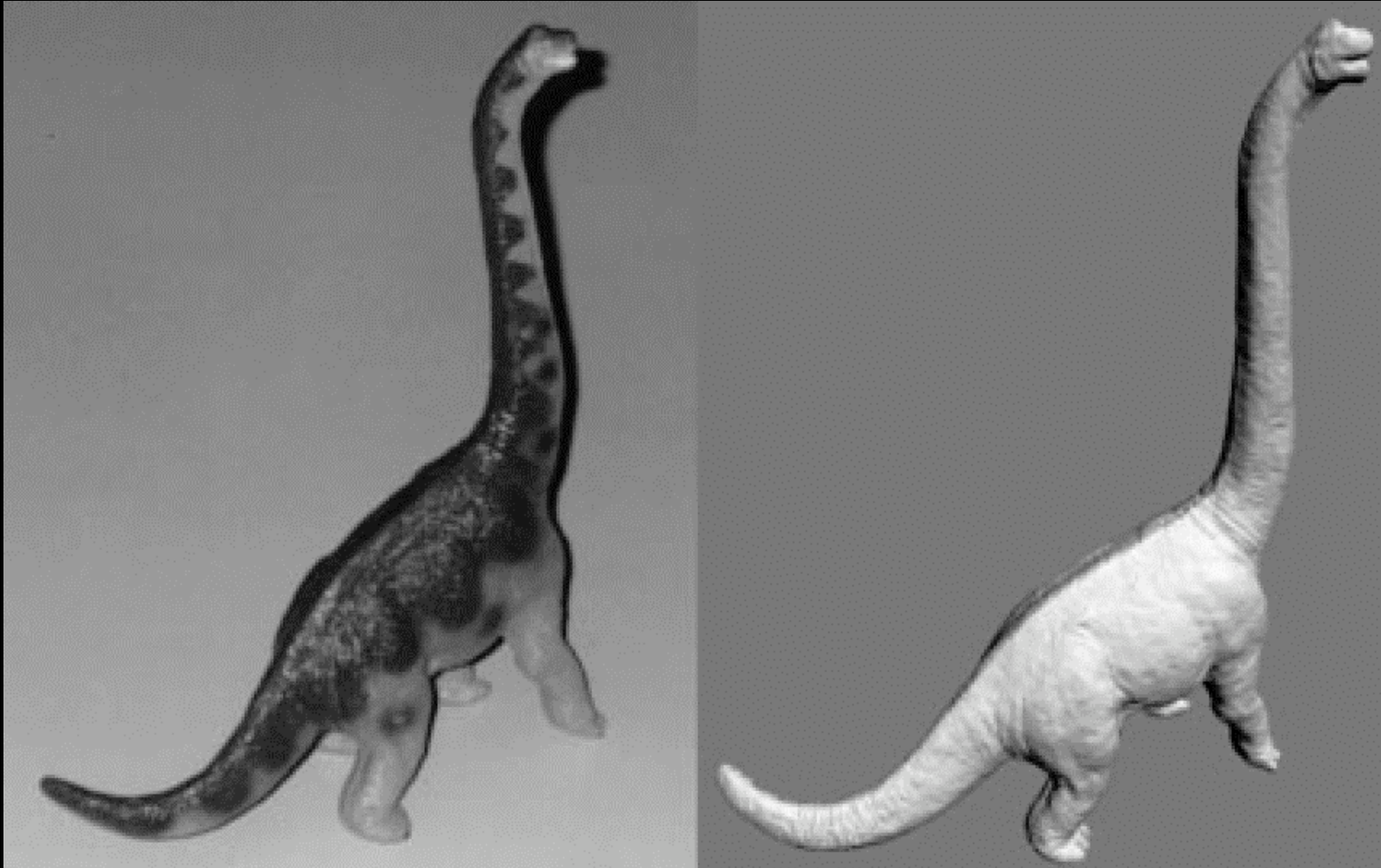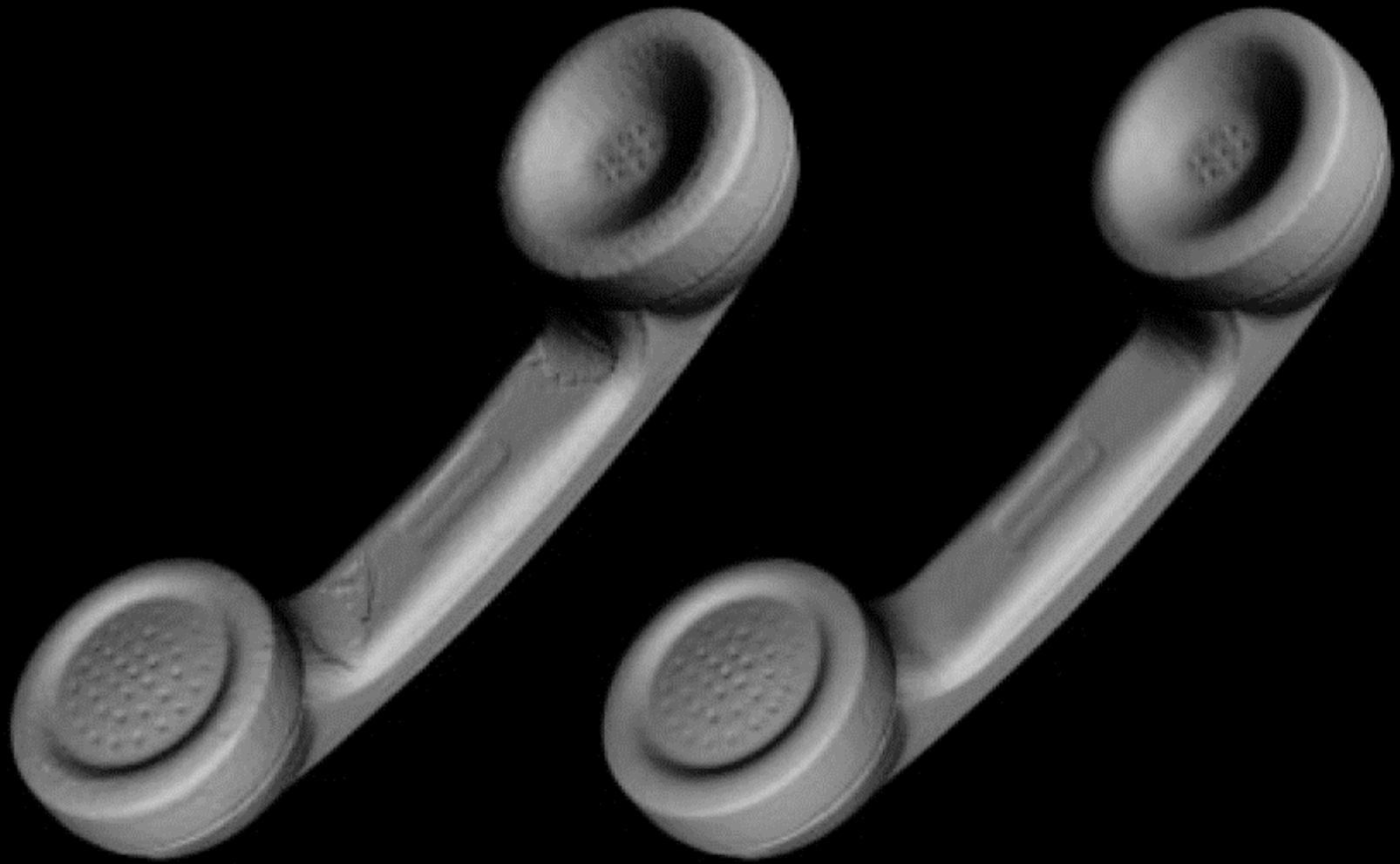2. Clip the meshes
3. Remove small triangles

Results

Results

Results

Overview

- A method of constructing meshes from range images

- Keys:
  - Incremental
  - Suspect data ignored