Zippered Polygon Meshes From Range Images

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How Do We Construct 3D Meshes?
Range Images
Acquiring Range Images

Image courtesy of http://www.chromecow.com/MadScience/3DScanner/Sketch_2.jpg
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 closest 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
Overview

• A method of constructing meshes from range images
• Keys:
  – Incremental
  – Suspect data ignored