

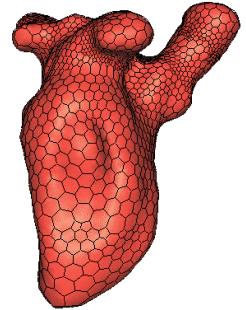
Visual Modeling and Reconstruction

Organizers & Chairs: Shree Nayar, Jean Ponce

Sensors for Robot Vision
Shree Nayar
Columbia University

Surface Simplex Meshes for 3D Medical Image Segmentation
J. Montagnat, H. Delingette, N. Scapellato and N. Ayache
INRIA, Sophia-Antipolis

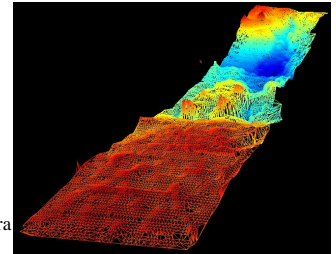
- Deformable surface based modeling and segmentation of 3D medical images
- Shape and global regularizing constraints, adaptable topology, automatic initialization
- CT, MRI and US images segmentation
- Fast and robust 3D images segmentation



Constructing Geometric Object Models From Images
J. Ponce, Y. Genc and S. Sullivan
University of Illinois

Terrain Reconstruction for Ground and Underwater Robots
R. Mandelbaum, G. Salgiano, H. Sawhney and M. Hansen
Sarnoff Corporation

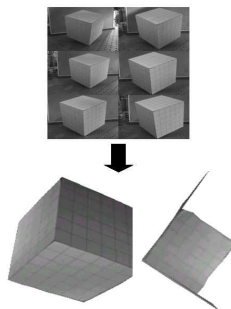
- New image-processing for egomotion and terrain structure recovery
- Correlation-based, iterative, multi-resolution approach
- Suited for outdoor ground-based and underwater scenes
- Can accommodate both single-camera and multiple-camera rigs



Self-calibration using the linear projective reconstruction
J. E. Ha¹, J. Y. Yang² and I. S. Kweon¹

¹Korea Advanced Institute of Science and Technology (KAIST) and
²Samsung Electronics Co.

- Self-calibration algorithm that only requires a linear projective reconstruction
- Linear initialization method based on the property of the absolute quadric
- Adding another constraint on the principal point to improve robustness to the image noise



3-D Map Reconstruction from Range Data
Daniel Huber, Owen Carmichael and Martial Hebert
Carnegie Mellon University

- Building large 3-D maps from sensor data
- Matching 3-D patches using local signatures for registration of partial views of the environment
- The techniques have been applied to 11 different sensors (passive and active) and has been used for building models of individual objects, indoor environments, large terrain maps, and sonar maps

