# Distributed Surface Reconstruction From Video
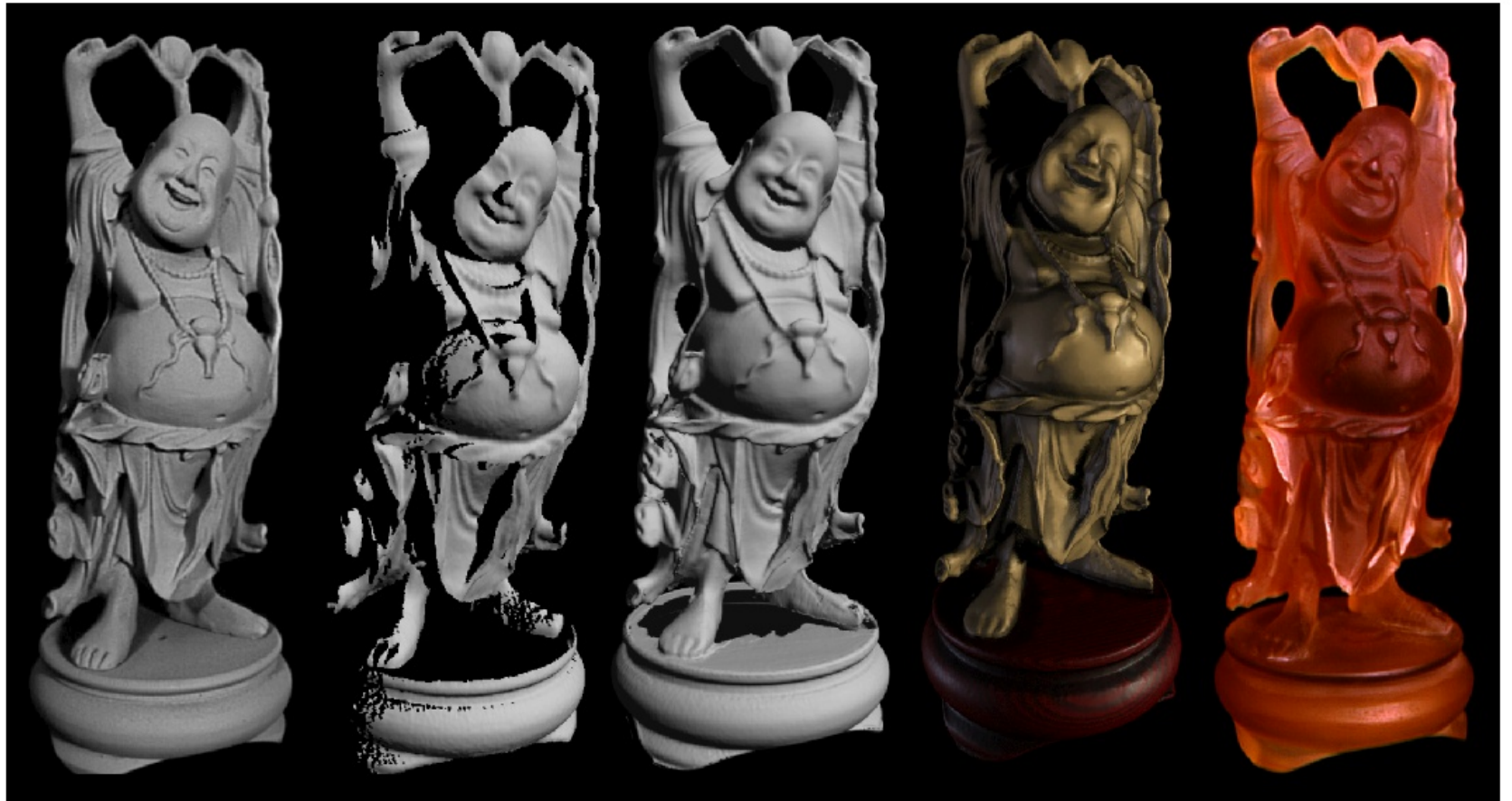
## Jeff Forrester and Halli Meth

*Alex Dekhytar, Chris Lupo, and Zoe Wood*

# What is Surface Reconstruction?

- Robotics
- Computer Vision
- Computational Geometry

# VRip (Curless, Levoy)

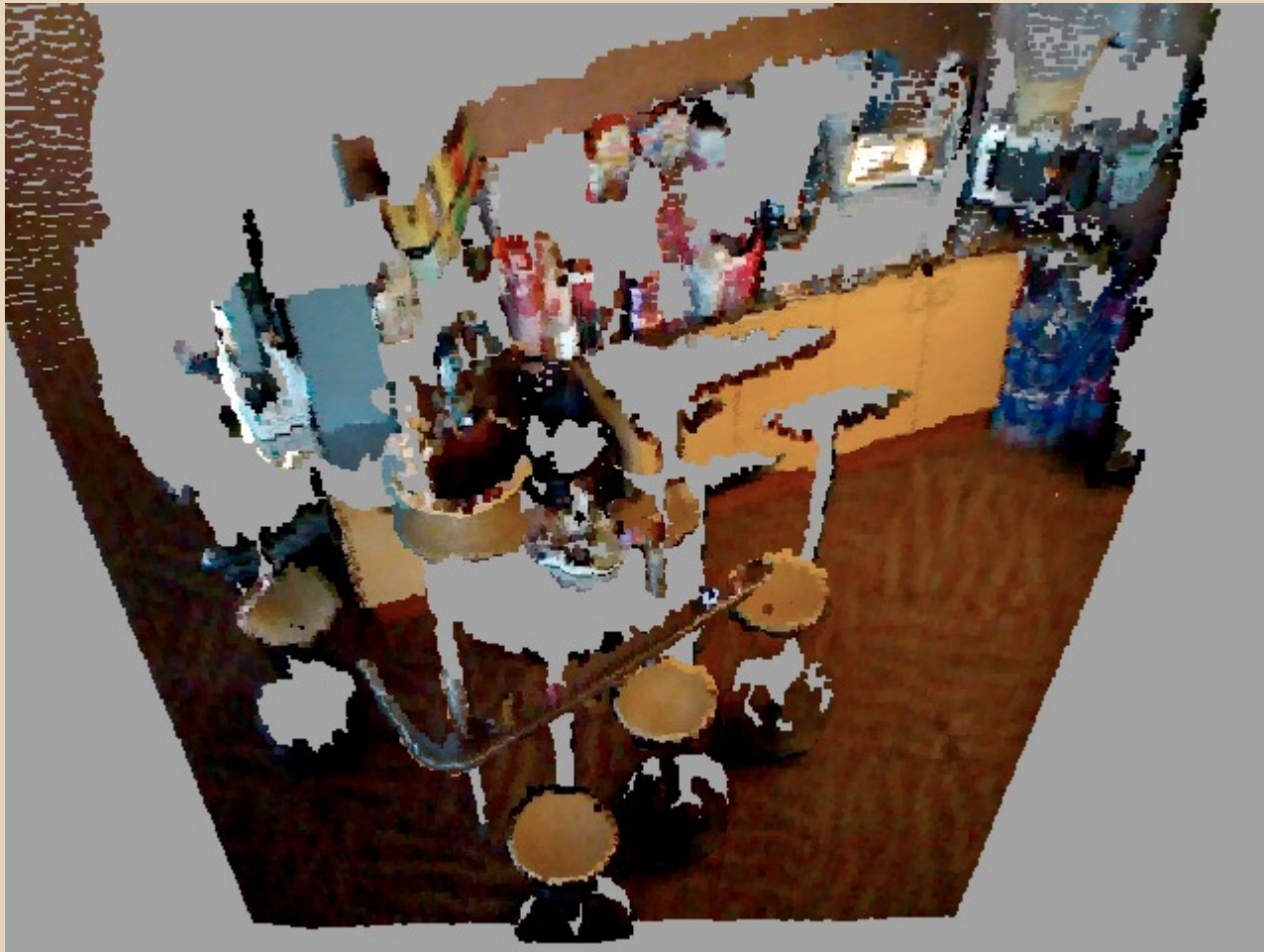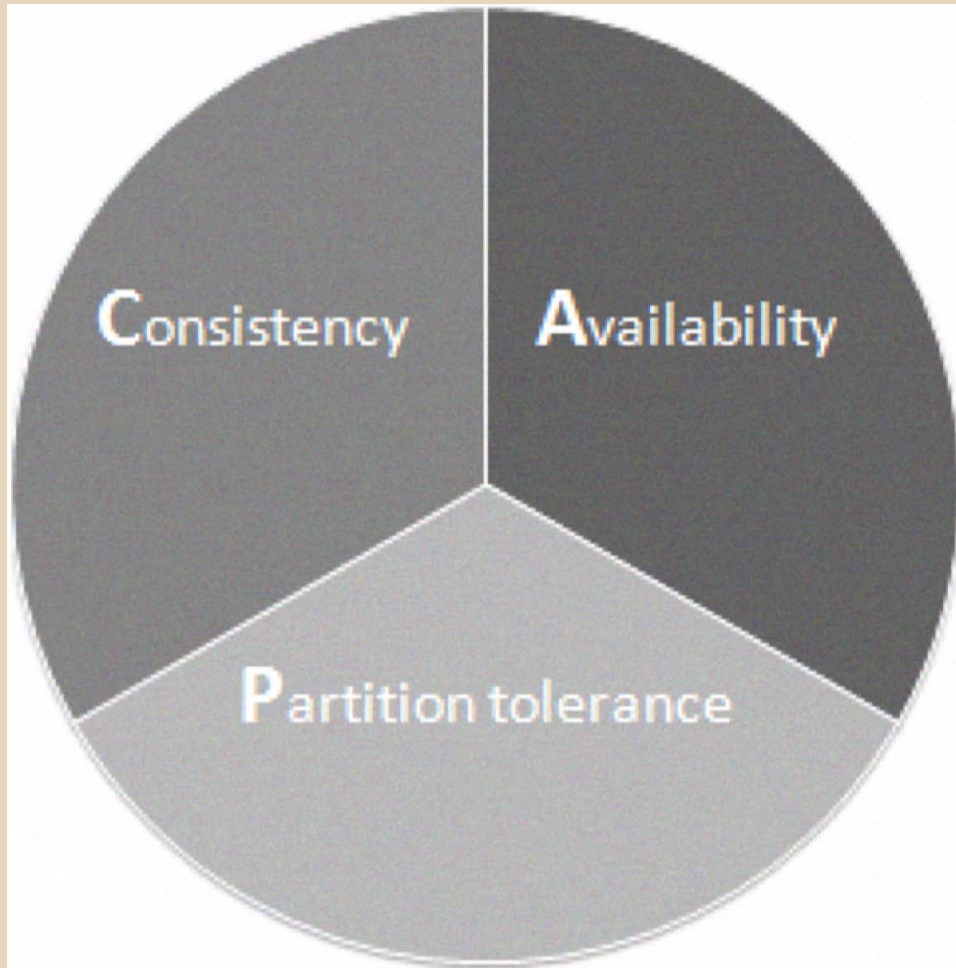

(a)        (b)        (c)        (d)        (e)

# RGB-D Mapping (Henry, et al.)

# Distributed Data Storage: NoSQL

- Advantages
  1) reading and writing data quickly
  2) supporting mass storage
  3) easy to expand
  4) low cost

- Disadvantages
  1) No SQL

# CAP Theorem



Professor Erik Brewer (2000)

Distributed Systems cannot meet all 3 needs

# Data Models and Mainstream Databases

- Key-Value - *BerkeleyDB*

- Column-Oriented - *Cassandra*, *Bigtable*, *Hadoop*

- Document Store - *MongoDB*, *CouchDB*

# Project Goal

- Speedup Surface Reconstruction

- Project Components
  1. Optimize Surface Reconstruction Algorithms (Jeff)
  2. Distribute computing tasks (Halli + Jeff)
  3. Smart data storage (Halli)