3D reconstruction

ACM528

Introduction

- 3D reconstruction
  - Process of capturing & reconstruct the 3D shape and appearance of real objects.
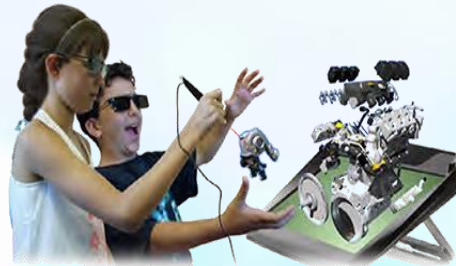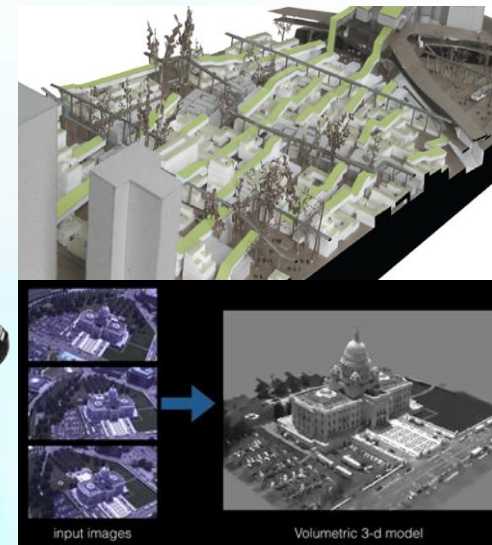 - Applications
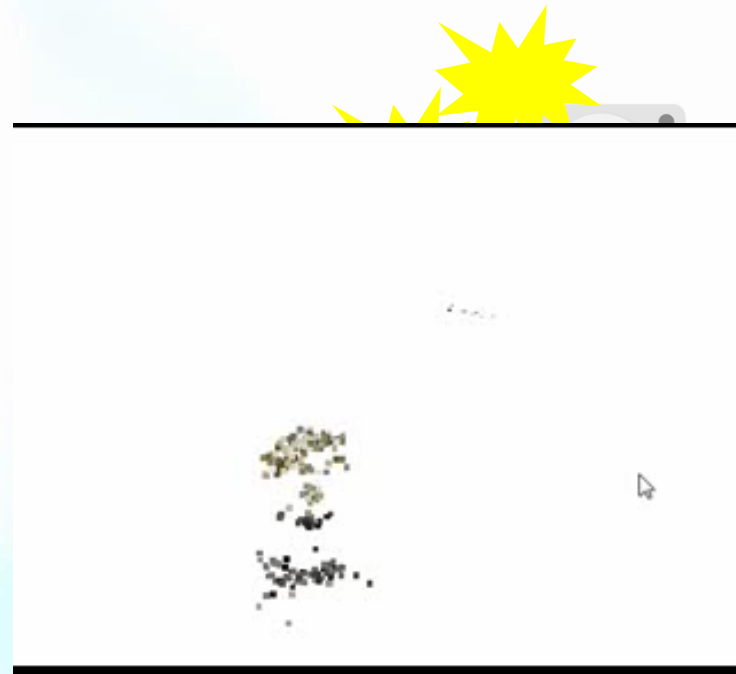
Urban planning

Antiquities digitalization

Medical use

Education

Applied Computated and Multimedia Lab

Structure from Motion [5][7][8]

Features detection

Features matching

Camera pose estimation

Estimate 3D-points

Bundle adjustment
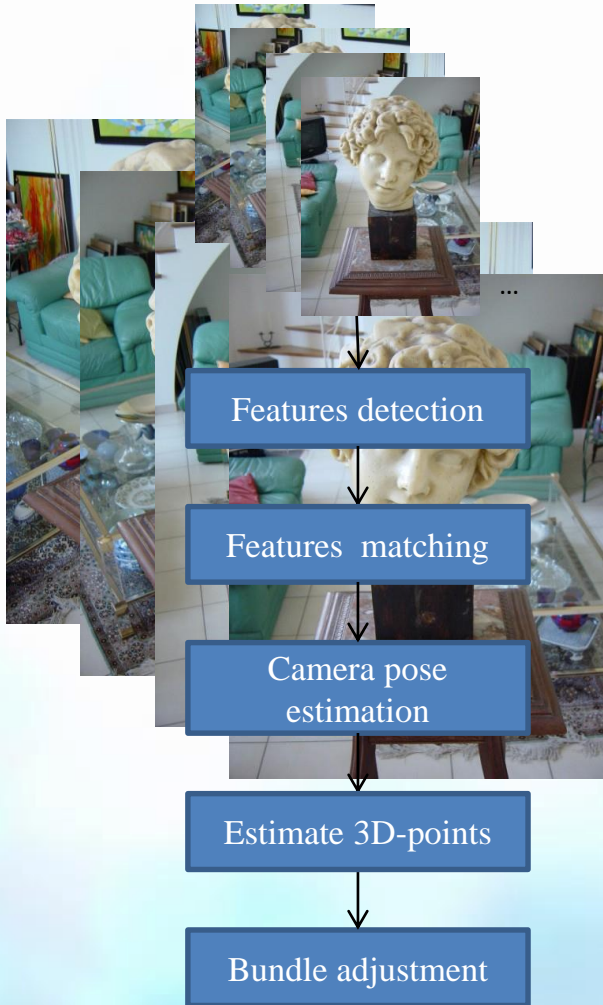
Sparse points

[5] R. Hartley and A. Zisserman, "Multiple view geometry in computer vision," 2003.
[7] R. Cipolla, "Chapter 13: structure from motion," Cambridge Machine Intelligence Laboratory.
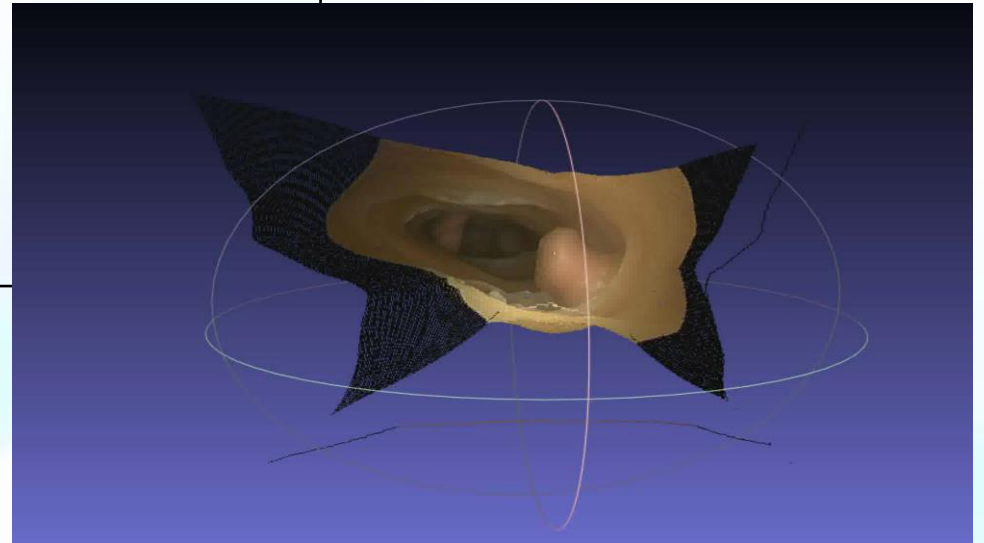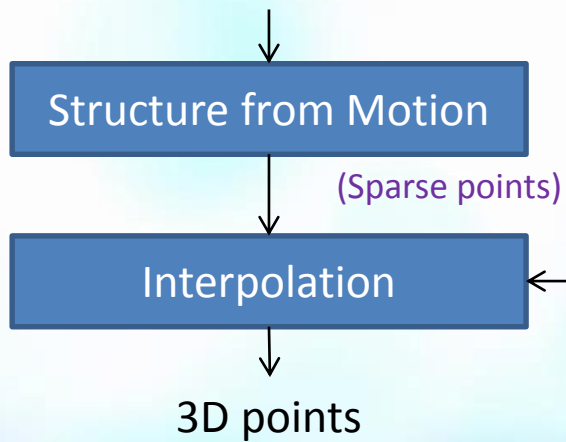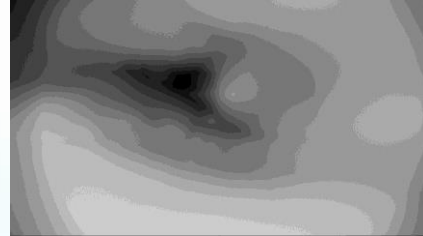[8] JianXiong Xiao, "Multi-view 3D Reconstruction for Dummies," Princeton Vision Group.

Methods

Input images

Depth image

Structure from Motion

(Sparse points)

Interpolation

3D points

Experiment results

GUI