

# CMSC755-Project 5: Structure From Motion

Rohan Chandra

Swati Singhal

**Abstract**—Structure from Motion from multiple views using bundle adjustment.

## I. TWO VIEW RECONSTRUCTION

We perform the following algorithm:

### A. RANSAC on matching pairs

Raw Feature Matching:



Fig. 1. Feature matching before RANSAC

After RANSAC:

### B. Fundamental Matrix Computation

### C. Essential Matrix and Four Camera Poses

### D. 2D Reprojection After Non - Linear Triangulation

### E. 3D visualization of Linear and Non Linear Triangulated Points

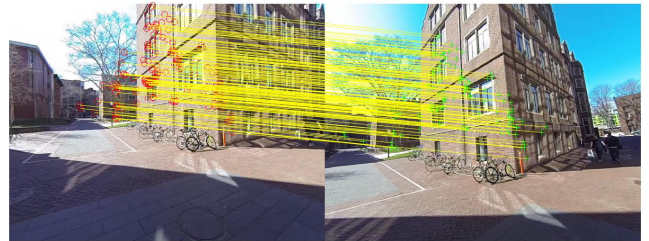


Fig. 2. Feature matching after RANSAC

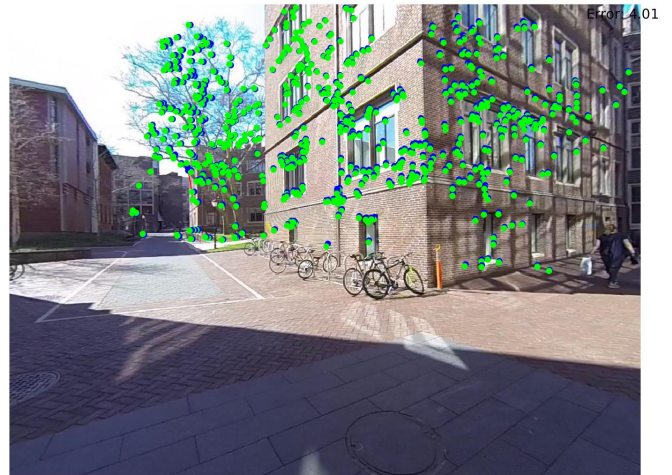




Fig. 3. 3D reprojection of 2D points. Blue indicate original points. Green indicate projected points. Error is displayed at the top

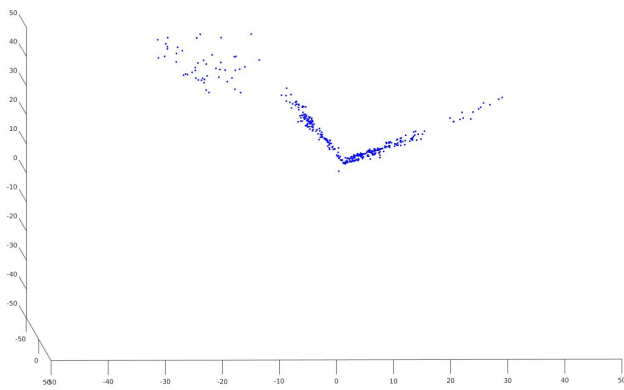


Fig. 4. Top View Reconstruction for 2 views

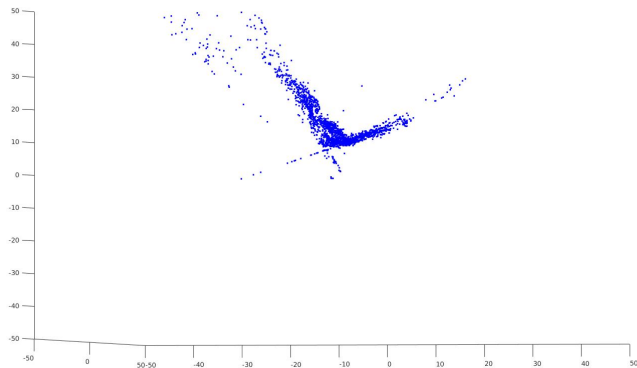


Fig. 5. Top View Reconstruction for 6 views