

# RANSAC

- RANdom Sample Consensus [*Fischer, Bolles, 1981*]
- Randomly select subset of  $k$  correspondences
- Compute geometric mapping parameters by linear regression
- Apply geometric mapping to all keypoints
- Count no. of inliers (closer than  $\Sigma$  from the corresponding keypoint, typical  $\Sigma = 1 \dots 3$  pixels)
- Repeat process  $S$  times, keep geometric mapping with largest no. of inliers
- Required number of trials

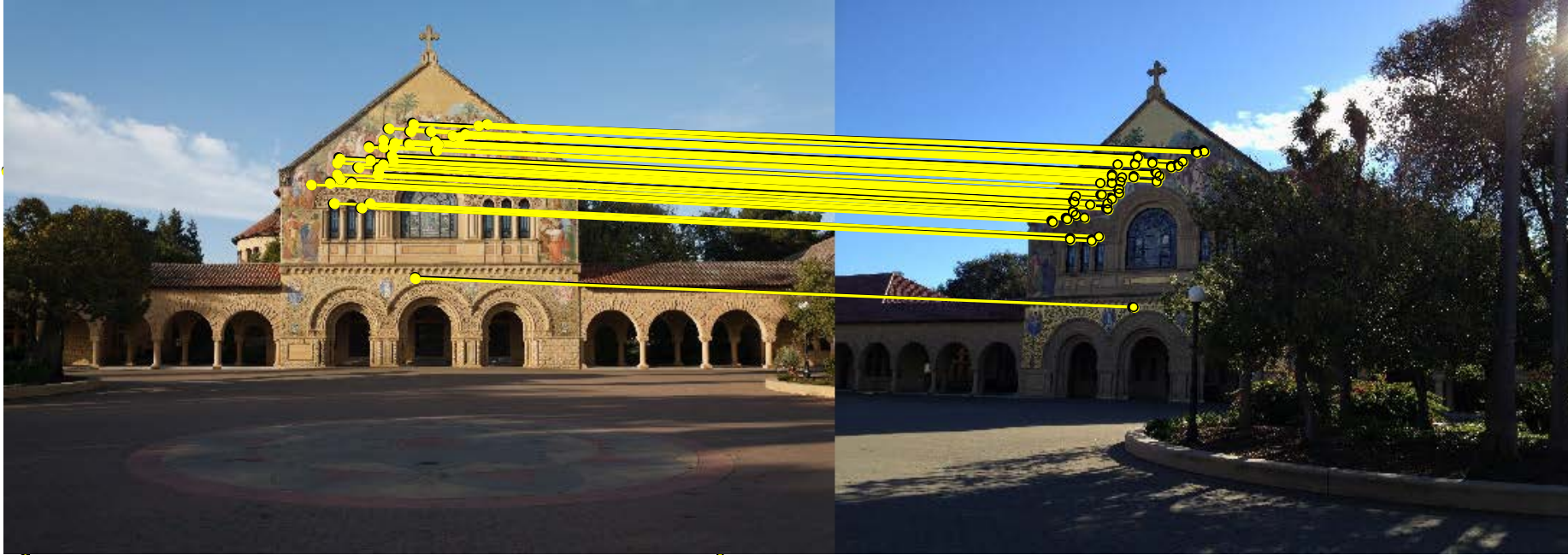
$$S = \frac{\log(1 - P)}{\log(1 - q^k)}$$

Total probability of success

Probability of valid correspondence

- Use small number of correspondences

# RANSAC with Affine Model



# RANSAC with Homography



# SURF features & affine RANSAC

