Logistics

- HW2 is out, due 10/15
- Office Hours this week only Thursday 2-3 PM
- Projects coming up!
Some potentially useful MATLAB functions

- imread
- image
- imshow
- imagesc
- imtransform
Epipolar Lines

Set 1 Image 1
Using Normalized Eight-Point Algorithm (Rank 2 Enforced)
Average Pixel Error = 0.89

Set 1 Image 2
Using Normalized Eight-Point Algorithm (Rank 2 Enforced)
Average Pixel Error = 0.83
Rectification
Projects

- Start thinking about projects!
- Project Proposals Due 10/22
  - Proposal Format
  - max 4 pages;
  - title and authors
  - sec 1. intro: problem you want to solve and why
  - sec 2. technical part: how do you propose to solve it?
  - sec 3. milestones (dates and sub-goals)
  - references
OpenCV

- [http://opencv.org/](http://opencv.org/)
- Widely used computer vision library
Datasets

- NCLT (http://perl-data.engin.umich.edu/nclt/)
- KITTI (http://www.cvlibs.net/datasets/kitti/)
- Many more, or you can collect your own

NCLT sample images
Traffic Lights

- Turn signal and stop light detection aided by LIDAR point clouds
Delaunay Triangulation

- Reimplement Delaunay Triangulation

Delaunay Triangulation (from wikipedia)
Semantic Structure from Motion

- Combine multi-image object detection and structure from motion to increase the accuracy of both.
- Structure from motion gives an estimation of whether the same object detected in different images are belongs to a same 3D region.
- Object detection and correspondences can be used similar to point correspondence in structure from motion, which gives more evidence to structure from motion.
Ferns: Feature Tracking

- Classification for faster feature point matching
Ferns: Feature Tracking

- Classification for faster feature point matching
- Or... pick your own paper!