Course Information

Location and Class Times

- Lectures: Monday & Wednesday 4:30pm - 5:50pm Wean Hall 7500

Recommended Books

- Computer Vision: A Modern Approach, by David A. Forsyth & Jean Ponce, Prentice Hall.
- Computer Vision: Algorithms and Applications, by Richard Szeliski, Springer.

Additional References

- Multiple View Geometry in Computer Vision - Hartley and Zisserman, Cambridge University Press.
- Introductory Techniques for 3-D Computer Vision, E. Trucco & A. Verri Vision Science, R. Palmer
- The Geometry of Multiple Images, Faugeras

Professors

- Srinivasa Narasimhan: Smith Hall 223, Questions after class
  Email: srinivas@cs.cmu.edu
- Yaser Sheikh, Smith Hall 220, Questions after class
  Email: yaser@cs.cmu.edu

Teaching Assistants (TAs)

- Tejas Mathai <tmathai@andrew.cmu.edu>
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- Kainan Peng <kainanp@andrew.cmu.edu>

TA Office Hours:

- Location: Smith Hall (EDSH) 200
- Times: Mondays from 6:00 pm - 7:30 pm
  Tuesdays from 6:00 pm - 7:30 pm
  Wednesdays from 6:00 pm - 7:30 pm
  Thursday from 6:00 pm - 7:30 pm

Grading Policy

- Five Homeworks - 90%
- One Project - 10%

Schedule

PART 0 : Overview and Matlab
8/29/2016: Introduction and Course Fundamentals (S)
8/31/2016: Math and Matlab (S)
9/5/2016: LABOR DAY, NO CLASS
PART 1 : Image Processing and Representation
9/7/2016: Filtering, Sampling, Edge Detection (S)
9/12/2016: Frequency domain, texture, pyramids (S)
[Hw1 OUT]
9/14/2016: Interest Point Detectors (Y)
9/19/2016: Feature Descriptors (Y)
PART 2 : Cameras and Image Formation
9/21/2016: Projection, Lenses and Camera Calibration (Y)
PART 3: Motion
9/26/2016: Motion and Optical Flow (Y) ***[Hw1 Due, Hw2 Out]***
9/28/2016: Image Alignment: Homography and Lucas-Kanade (Y)
10/03/2016: Motion Segmentation (Y) ***[Project Proposals Due]***
PART 4: Multi-view Geometry and 3D Reconstruction
10/5/2016: 2-View and 3-View Geometry (S)
10/10/2016: Binocular Stereo (S)
10/12/2016: Structured Light and Range Imaging (S) ***[Hw2 Due, Hw3 Out]***
10/17/2016: Structure-from-motion I (S)
10/19/2016: Structure-from-motion II (S)
PART 5 : Segmentation, Detection and Recognition
10/24/2016: Machine learning for vision (S)

10/26/2016: Detection - Patches and Parts (S) ***[Hw3 Extended, Hw4 Out]***

10/28/2016: Segmentation I (S) ***[Hw3 Due]***
10/31/2016: Segmentation II (S)
11/2/2016: Deep Learning I (Y)
11/7/2016: Deep Learning II (Y)
11/9/2016: Deep Learning III (Y)

PART 6: Light Transport and Social Cameras

11/14/2016: Materials, BRDF, Photometric Stereo (S)
[Hw4 DUE, Hw5 OUT]
11/16/2016: Direct and Global Illumination (S)
11/21/2016: Computational Light Transport (S)
11/23/2016: THANKSGIVING HOLIDAY, NO CLASS
11/28/2016: Social Cameras I (Y) ***[Hw5 Due]***
11/30/2016: Social Cameras II (Y)
12/5/2016: Fast Forward Project Presentations
12/7/2016: Poster presentations (Newell Simon Hall Atrium, 3-6pm)
12/8/2016: Poster presentations (Newell Simon Hall Atrium, 3-6pm)
12/23/2016: Final Grades Due