ENEE 731/CMSC 828G **Fall 2016**

Project 2: 3D modeling using Structure from Motion and Shape from Shading
Due: Dec. 15, 2016

Section A

Implement,

- The factorization approach for orthographic camera [1], and
- Choose the best image from the sequence and apply the 3D modeling approach using the algorithm of Barron and Malik [2].

Section B

Present a comparative study of the main issues in the algorithms you used in Section A

Dataset: From Prof. Marc Polleyfeys' website. http://www.cs.unc.edu/~marc/

Castle Sequence
Medusa Head

References

[1] C. Tomasi and T. Kanade, "Shape and motion from image streams under orthography-- a factorization method," International Journal of Computer Vision, 9(2):137--154, 1992.

[2] J.T. Barron and J.Malik, "Shape, illumination, and reflectance from shading", IEEE Trans. on Patt. Anal. And Mach. Intel.

Submission Guidelines

1) Report detailing main implementation steps (not necessarily in detail), a critique on the performance of each algorithm and failure modes , reasons for poor/superlative performance.
2) You are required to test on both datasets above. Feel free to test on other ones too.
3) Do remember to cite sources appropriately, including those involving the datasets

Feature Point Tracking

Feel free to use any feature point trackers. You are free to use any code for feature point tracking available online. KLT (Shi, Tomasi "Good Features to Track") is a popular tracker. Code for that is available in C/C++ as a part of the OpenCV libraries. Matlab may be available online.