Reconstructing scenes from photos using Global SfM

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1 Problem

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2 Goals

We intend to implement a Global Structure from Motion technique to reconstruct scenes from photos. We will use the techniques described by [Chatterjee and Govindu 2013] and [Wilson and Snavely 2014]. If we run into time constraints, we will use the code for [Chatterjee and Govindu 2013] (which is available online) and we will implement the translation correction ourselves. We intend to use our implementation with a large dataset obtained from the internet.

3 Schedule

Plan A:

- Week of October 13th: Project Proposal Presentation
- Week of October 20th: Feature Detection and Feature Matching
- Week of October 27th: Homography Computation and Relative Rotation/Translation computation
- Week of November 3rd: Homography Computation and Relative Rotation/Translation computation
- Week of November 10th: Rotation Averaging
- Week of November 17th: Rotation Averaging
- Week of November 24th: Translation Correction
- Week of November 1st: Translation Correction
- Week of November 8th:

References

CHATTERJEE, A., AND GOVINDU, V. 2013. Efficient and robust large-scale rotation averaging. In *Computer Vision (ICCV), 2013 IEEE International Conference on*, 521–528.

WILSON, K., AND SNAVELY, N. 2014. Robust global translations with 1dsfm. In *Computer Vision ECCV 2014*, D. Fleet, T. Pajdla, B. Schiele, and T. Tuytelaars, Eds., vol. 8691 of *Lecture Notes in Computer Science*. Springer International Publishing, 61–75.

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