

Chris Sweeney

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Santa Barbara, CA 93109

EDUCATION

Doctor of Philosophy Candidate, Computer Science, Expected January 2016
University of California, Santa Barbara, Santa Barbara, CA

Research Goals: Modeling and calibrating the distributed camera
Advisors: Tobias Höllerer and Matthew Turk

Visiting PhD Student, Computer Vision and Geometry Lab, October 2014 – April 2015
Eidgenössische Technische Hochschule (ETH) Zürich, Zürich, Switzerland
Hosted by: Professor Marc Pollefeys, Dr. Torsten Sattler

Bachelor of Science (with High Distinction), Computer Science
Bachelor of Arts, Mathematics
May 2011, University of Virginia, Charlottesville, VA

RESEARCH AND PROFESSIONAL EXPERIENCE

Graduate Research Assistant, 4 Eyes Research Lab, Department of Computer Science,
University of California, Santa Barbara
Santa Barbara, CA, Sept 2011 – present

Research Intern, Lightfield Group, Google, Inc, Seattle, WA
Summer 2014, Under the supervision of Sameer Agarwal

Research Intern, Visual Search Team, Google, Inc, Los Angeles, CA
Summer 2012, Summer 2013

Undergraduate Research Assistant, Department of Computer Science, University of
Virginia, Charlottesville, VA
August 2009 - May 2011

PUBLICATIONS

L. Kneip, **C. Sweeney**, R. Hartley, “The Generalized Relative Pose-and-Scale Problem: View-Graph Fusion via 2D-2D registration”. Winter Conference on Applications of Computer Vision (WACV), 2016.

C. Sweeney, T. Sattler, T. Höllerer, M. Turk, M. Pollefeys, “Optimizing the Viewing Graph for Structure-from-Motion”, Proceedings of the International Conference on Computer Vision (ICCV), 2015.

C. Sweeney, T. Höllerer, M. Turk, “Theia: A Fast and Scalable Structure-from-Motion Library”, ACM Open Source Software Competition. 2015. **[Selected as a finalist]**

C. Sweeney, J. Flynn, B. Nuernberger, M. Turk, T. Höllerer, “Efficient Computation of Absolute Pose for Gravity-Aware Augmented Reality”, Proceedings of the IEEE Symposium on Mixed and Augmented Reality (ISMAR), 2015. **[Best Short Paper Award]**

C. Sweeney, L. Kneip, T. Höllerer, M. Turk, “Computing Similarity Transformations from Only Image Correspondences”, Proceedings of the Conference on Computer Vision and Pattern Recognition (CVPR), 2015.

C. Sweeney, J. Flynn, M. Turk, “Solving for Relative Pose with Partially Known Rotation is a Quadratic Eigenvalue Problem”, Proceedings of the International Conference on 3D Vision (3DV), 2014.

C. Sweeney, V. Fragoso, T. Höllerer, M. Turk, “gDLS: A Scalable Solution to the Generalized Pose and Scale Problem”, Proceedings of the European Conference on Computer Vision (ECCV), 2014.

T. Sattler, **C. Sweeney**, M. Pollefeys, “On Sampling Focal Length Values to Solve the Absolute Pose Problem”, Proceedings of the European Conference on Computer Vision (ECCV), 2014.

S. Gauglitz, **C. Sweeney**, J. Ventura, M. Turk, T. Höllerer, “Model Estimation and Selection towards Unconstrained Real-time Tracking and Mapping”, IEEE Transactions on Visualization and Computer Graphics (TVCG), vol. 20, no. 6, pp. 825-838, June 2014

C. Sweeney, M. Turk, T. Höllerer, “Improved Outdoor Augmented Reality through ‘Globalization’”, Doctoral Consortium at the International Symposium on Mixed and Augmented Reality (ISMAR), 2013

S. Gauglitz, **C. Sweeney**, J. Ventura, M. Turk, T. Höllerer, “Live Tracking and Mapping from Both General and Rotation-Only Camera Motion”, International Symposium on Mixed and Augmented Reality (ISMAR), 2012 **[Best Paper Award]**

C. Sweeney, L. Liu, S. Arietta, J. Lawrence, “HIPI: A Hadoop Image Processing Interface for Image-based MapReduce Tasks”, Undergraduate Senior Thesis, School of Engineering and Applied Sciences, University of Virginia, 2011

TEACHING EXPERIENCE

Graduate Reader, Mixed and Augmented Reality (CS 290I), Department of Computer Science, University of California, Santa Barbara, Santa Barbara, CA
Winter 2012

- Responsible for creating and grading all homework assignments
- Gave several lectures on mobile augmented reality

Teaching Assistant, Program and Data Representations (CS 216), Department of Computer Science, University of Virginia, Charlottesville, VA
Spring 2010

- Ran 2 hour lab lecture once per week
- Held weekly office hours, met with students one-on-one
- Responsible for grading homework assignments and exams

OPEN SOURCE CONTRIBUTIONS

Theia: an open source library for structure-from-motion
URL: <http://www.theia-sfm.org>

- 2015 ACM MM Open Source Software Competition Winner
- Primary developer, maintainer
- Provides a flexible, efficient end to end system for researchers and users in Computer Vision

HIPI: Hadoop Image Processing Library

URL: <http://hipi.cs.virginia.edu/>

- Primary developer, maintainer
- Created custom distributed file storage for large-scale images
- Designed a research tool customized for image processing and computer vision applications

Libjpeg Turbo

- Created bit-operative Huffman encoding with parity aware recovery

PROFESSIONAL ACTIVITIES

Invited Lectures

- Carnegie Mellon VASC Seminar Series, September 2015
- University of Washington, July 2015
- Microsoft Research, July 2015
- TU Graz, March 2015
- University of Virginia, September 2014

Invited Reviewer

- IEEE Conference on Computer Vision and Pattern Recognition (CVPR)
- IEEE International Conference on Computer Vision (ICCV)
- IEEE International Symposium on Mixed and Augmented Reality (ISMAR)
- IEEE Transactions on Visualization and Computer Graphics (TVCG)
- IEEE Virtual Reality (VR)
- Journal of Image and Vision Computing

ACADEMIC ACTIVITIES

University Services

- Madison House Alumni Council, Vice Chair (2012 – present)
- University of Virginia Young Alumni Council (2012 – 2014)
- Graduate Student Association Department Representative (2012 – 2014)

HONORS/AWARDS

ISMAR 2015 Best Short Paper

Winner of ACM Open Source Software Competition (2015)

National Science Foundation (NSF) Graduation Research Fellowship, 2013 - 2016

ISMAR 2012 Best Paper Award

Graduate Opportunity Fellowship (University of California, Santa Barbara), 2011-2012

Louis T. Radar Award for Research (University of Virginia), 2011

Voted Best Internship Project (Google, Inc), 2010, 2012

Google Outstanding Undergraduate Engineering Scholarship, 2010-2011

Member of Raven Society (University of Virginia)

Computing Research Association Outstanding Undergraduate Research Award, 2011

NSF PAGES Fellowship, 2007-2011