Chris Sweeney

Curriculum Vitae

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References available by request.

Work Experience

Jan. 2016 - present **Research Associate (Postdoc)**, *University of Washington*,
Focusing on virtual reality and 3D reconstruction with Professors Steve Seitz and Brian Curless.

Sept. 2015 - present **Chief Scientist**, *Geomagical Labs, Inc.*, Mountain View, CA,
Co-founded and helped to grow our start-up to a company with 8 employees. Developing mobile apps for 3d-guided interior design.

Summer 2014 **Research Intern**, *Google, Inc.*, Seattle, WA.

Summer 2013 **Software Engineering Intern**, *Google, Inc.*, Los Angeles, CA.

Summer 2012 **Software Engineering Intern**, *Google, Inc.*, Los Angeles, CA.

Education

Sept. 2011 - Jan. 2016 **Doctor of Philosophy, Computer Science**, *University of California Santa Barbara*,
Advisors: Professors Matthew Turk and Tobias Höllerer,
Dissertation: Modeling and Calibrating the Distributed Camera.

Aug. 2014 - April 2015 **Visiting Researcher**, *Eidgenössische Technische Hochschule (ETH) Zürich*,
Visiting Professor Marc Pollefeys' lab at ETH Zürich.

Sept. 2007 - May 2011 **Bachelor of Science**, *University of Virginia*,
Majors: Computer Science, Mathematics,
Honors: with High Distinction.

Awards and Honors

2016, 2017 CVPR Outstanding Reviewer

2015 ISMAR Conference Best Short Paper Award

2015 Winner of ACM Open Source Software Competition for Theia SfM Library

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

2013 ISMAR Outstanding Student Contributor

2012 ISMAR Conference Best Paper Award

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

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

2011 Computing Research Association Outstanding Undergraduate Research Award

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

2010 - 2011 Google Outstanding Undergraduate Engineering Scholarship

2010 Inducted into Raven Honors Society (University of Virginia)

2007 - 2011 NSF PAGES Fellowship, 2007-2011

Professional Activities

Invited Lectures

Sept. 2015	Carnegie Mellon VASC Seminar Series
July 2015	University of Washington
July 2015	Microsoft Research
March 2015	Technische Universität (TU) Graz
Sept. 2014	University of Virginia

Invited Reviewer

Conferences	IEEE Conference on Computer Vision and Pattern Recognition (CVPR) IEEE International Conference on Computer Vision (ICCV) European Conference on Computer Vision (ECCV) ACM Special Interest Group on Computer Graphics (SIGGRAPH) IEEE International Conference on 3D Vision (3DV) IEEE International Symposium on Mixed and Augmented Reality (ISMAR) IEEE Virtual Reality (VR)
Journals	IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI) Journal of Image and Vision Computing IEEE Transactions on Visualization and Computer Graphics (TVCG)

University Services

2011 - 2017	Madison House Alumni Council Served as Chair from 2016-2017 and Vice Chair for 2014-2016
2013 - 2015	University of Virginia Young Alumni Council
2012 - 2014	Graduate Student Association Department Representative

Teaching Experience

Winter 2016	**Graduate Computer Vision Seminar (CS590V)**, *University of Washington*.
Winter 2012	**Graduate Reader, Mixed and Augmented Reality (CS290I)**, *University of California Santa Barbara*.
Spring 2010	**Teaching Assistant, Program and Data Representations (CS216)**, *University of Virginia*.

Open Source Software Contributions

Theia SfM: A fast and scalable structure-from-motion library
Project hosted at: `www.theia-sfm.org`
2015 ACM Open Source Software Competition Winner
Provides a flexible, efficient end to end 3d reconstruction system for researchers and users in Computer Vision

HIPI: Hadoop Image Processing Library
Project hosted at: `http://hipi.cs.virginia.edu/`
Provides an image-first interface for large scale image processing with Hadoop

Publications

Qiaodong Cui, Victor Fragoso, **Sweeney, Chris**, and Pradeep Sen. Graphmatch: Efficient large-scale graph construction for structure from motion. In *International Conference on*

3D Vision (3DV). IEEE, 2017. **[Oral]**.

Victor Fragoso, **Chris Sweeney**, Pradeep Sen, and Matthew Turk. Ansac: Adaptive non-minimal sample and consensus. In *British Machine Vision Conference (BMVC)*, 2017.

Laurent Kneip, **Chris Sweeney**, and Richard Hartley. The generalized relative pose and scale problem: View-graph fusion via 2d-2d registration. In *Winter Conference on Applications of Computer Vision (WACV)*. IEEE, 2016.

Benjamin Nuernberger, Kuo-Chin Lien, Lennon Grinta, **Chris Sweeney**, Matthew Turk, and Tobias Höllerer. Multi-view gesture annotations in image-based 3d reconstructed scenes. In *Proceedings of the ACM Conference on Virtual Reality Software and Technology (VRST)*, 2016.

Chris Sweeney, Victor Fragoso, Tobias Höllerer, and Matthew Turk. Large scale sfm with the distributed camera model. In *International Conference on 3D Vision (3DV)*. IEEE, 2016.

Chris Sweeney, John Flynn, Benjamin Nuernberger, Matthew Turk, and Tobias Höllerer. Efficient computation of absolute pose for gravity-aware augmented reality. In *Proceedings of the IEEE International Symposium on Mixed and Augmented Reality (ISMAR)*, 2015. **[Best Paper Award]**.

Chris Sweeney, Tobias Höllerer, and Matthew Turk. Theia: A fast and scalable structure-from-motion library. In *Proceedings of the ACM International Conference on Multimedia*, 2015.

Chris Sweeney, Laurent Kneip, Tobias Höllerer, and Matthew Turk. Computing similarity transformations from only image correspondences. In *The IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2015.

Chris Sweeney, Torsten Sattler, Tobias Höllerer, Matthew Turk, and Marc Pollefeys. Optimizing the viewing graph for structure-from-motion. In *Proceedings of the IEEE International Conference on Computer Vision (ICCV)*, 2015.

Steffen Gauglitz, **Chris Sweeney**, Jonathan Ventura, Matthew Turk, and Tobias Höllerer. Model estimation and selection towards unconstrained real-time tracking and mapping. *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, 2014.

Torsten Sattler, **Chris Sweeney**, and Marc Pollefeys. On sampling focal length values to solve the absolute pose problem. In *European Conference on Computer Vision (ECCV)*, 2014.

Chris Sweeney, John Flynn, and Matthew Turk. Solving for relative pose with a partially known rotation is a quadratic eigenvalue problem. In *International Conference on 3D Vision (3DV)*. IEEE, 2014. **[Oral]**.

Chris Sweeney, Victor Fragoso, Tobias Höllerer, and Matthew Turk. gdls: A scalable solution to the generalized pose and scale problem. In *European Conference on Computer Vision (ECCV)*, 2014.

Chris Sweeney, Tobias Höllerer, and Matthew Turk. Improved outdoor augmented reality through "globalization". In *IEEE International Symposium on Mixed and Augmented Reality (ISMAR)*, 2013.

Steffen Gauglitz, **Chris Sweeney**, Jonathan Ventura, Matthew Turk, and Tobias Höllerer. Live tracking and mapping from both general and rotation-only camera motion. In *IEEE International Symposium on Mixed and Augmented Reality (ISMAR)*, 2012. **[Best Paper Award]**.