Noah Snavely

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Positions Held

Professor of Computer Science, Cornell Tech	2023-present
Associate Professor of Computer Science, Cornell Tech	2014-2023
Assistant Professor of Computer Science, Cornell University	2009-2014
Research Scientist, Google Research	2014-present
Co-Founder and Chief Scientist at TaggPic (acquired by Google)	2012-2014

Education

University of Washington, Seattle, WA — 2003-2008
Ph.D. in Computer Science and Engineering, December 2008
Advisors: Steven M. Seitz and Richard Szeliski

University of Arizona, Tucson, AZ — 1999-2003
B.S. in Computer Science and Mathematics with Honors, May 2003

Honors and Awards

ACM Fellow	2024
ICCV Best Student Paper Award	2023
CVPR Best Paper Honorable Mention	2023
Cornell Ann S. Bowers Inaugural Research Excellence Award	2022
Helmholtz Prize (computer vision ten year test of time award) for *Building Rome in a Day*	2019
CVPR Best Paper Honorable Mention	2019
ECCV Best Paper Award (with Kevin Matzen)	2014
SIGGRAPH Significant New Researcher Award	2014
Presidential Early Career Award for Scientists and Engineers (PECASE)	2013
Cornell College of Engineering Mr. & Mrs. Richard F. Tucker Teaching Excellence Award	2012
NSF CAREER Award	2012
Alfred P. Sloan Fellow	2012
Technology Review, TR35: 35 Technology Innovators under 35	2011
Microsoft Research New Faculty Fellow	2011
CVPR 2011 Best-Paper Runner-up	2011
ACM Doctoral Dissertation Award Honorable Mention	2009
University of Washington CSE William Chan Memorial Dissertation Award	2009
University of Washington 6th Chapter Thesis Award	2009
Microsoft Live Labs Fellow	2007-2008
NSF Graduate Research Fellow	2003-2007
Achievement Rewards for College Scientists (ARCS) Fellow	2003-2006
Runner-up, CRA Outstanding Undergraduate Award	2003

Journal Publications

1. Zeqi Gu, Wenqi Xian, Noah Snavely, Abe Davis. "FactorMatte: Redefining Video Matting for Re-Composition Tasks." *ACM Transactions on Graphics (Proceedings of SIGGRAPH)*, 2023.

2. Tali Dekel, Noah Snavely. "Unveiling Unexpected Training Data in Internet Video." *Communications of the ACM*, 64(8), 2021.

3. Scott Wehrwein, Kavita Bala, and Noah Snavely. "Scene Summarization via Motion Normalization." *IEEE Transactions on Visualization and Computer Graphics*, 27(4), 2021.

4. Zhengqi Li, Tali Dekel, Forrester Cole, Richard Tucker, Noah Snavely, Ce Liu and William T. Freeman. "MannequinChallenge: Learning the Depths of Moving People by Watching Frozen People." *Transactions on Pattern Analysis and Machine Intelligence*, 2020.

5. Ranjita Thapa, Kai Zhang, Noah Snavely, Serge Belongie, Awais Khan. "The Plant Pathology Challenge 2020 data set to classify foliar disease of apples." *Applications in Plant Sciences*, 8 (9), 2020.

6. Tinghui Zhou, Richard Tucker, John Flynn, Graham Fyffe, Noah Snavely. "Stereo Magnification: Learning View Synthesis using Multiplane Images." *ACM Transactions on Graphics (Proceedings of SIGGRAPH)*, 2018.

7. Robert Anderson, David Gallup, Jonathan T. Barron, Janne Kontkanen, Noah Snavely, Carlos Hernandez Esteban, Sameer Agarwal, Steven M. Seitz. "Jump: Virtual Reality Video." *ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia)*, 2016.

8. Daniel Hauagge, Scott Wehrwein, Kavita Bala, Noah Snavely. "Photometric Ambient Occlusion for Intrinsic Image Decomposition." *Transactions on Pattern Analysis and Machine Intelligence (PAMI)*, 2016.

9. Albert Liu, Steve Marschner, Noah Snavely. "Caliber: Camera Localization and Calibration Using Rigidity Constraints." *International Journal of Computer Vision (IJCV)*, 2015.

10. Noah Snavely. "Technical Perspective: Paris Beyond Frommer's." *Communications of the ACM*, 58(12), page 102, December 2015.

11. Song Cao and Noah Snavely. "Graph-Based Discriminative Learning for Location Recognition." *International Journal of Computer Vision (IJCV)*, 2014.

12. Sean Bell, Kavita Bala, Noah Snavely. "Intrinsic Images in the Wild." *ACM Transactions on Graphics (Proceedings of SIGGRAPH)*, 2014.

13. Sean Bell, Paul Upchurch, Noah Snavely, Kavita Bala. "OpenSurfaces: A Richly Annotated Catalog of Surface Appearance." *ACM Transactions on Graphics (Proceedings of SIGGRAPH)*, 2013.

14. David Crandall, Andrew Owens, Noah Snavely, Daniel P. Huttenlocher. "SfM with MRFs: Discrete-Continuous Optimization for Large-Scale Structure from Motion." *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)*, 35(12), 2013.

15. Richard Szeliski, Noah Snavely, Steven M. Seitz. "Navigating the worldwide community of photos." *ACM Transactions on Multimedia Computing, Communications, and Applications*, 9(1), October 2013.

16. David Crandall and Noah Snavely. "Modeling People and Places with Internet Photo Collections." *Communications of the ACM (CACM)*, 55(6), June 2012.

17. Guowei Wan, Noah Snavely, Daniel Cohen-Or, Qian Zheng, Baoquan Chen, Sikun Li. "Sorting unorganized photo sets for urban reconstruction." *Graphical Models* 74, pp. 14-28, 2012.

18. Chun-Po Wang, Steve Marschner, Noah Snavely. "Estimating Dual-scale Properties of Glossy Surfaces from Step-edge Lighting." *ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia)*, 2011.

19. Sameer Agarwal, Yasutaka Furukawa, Noah Snavely, Brian Curless, Steven M. Seitz, Richard Szeliski. "Reconstructing Rome." *Trans. IEEE Computer* (**Cover Feature**), 43(6), 40-47. June 2010.

20. Noah Snavely, Ian Simon, Michael Goesele, Richard Szeliski, Steven M. Seitz. "Scene Reconstruction and Visualization from Community Photo Collections." *Proceedings of the IEEE* 98(8), 1370-1390. August 2010.

21. Noah Snavely, Rahul Garg, Steven M. Seitz, Richard Szeliski. "Finding Paths through the World's Photos." *ACM Transactions on Graphics (Proceedings of SIGGRAPH 2008)*, 27(3), pp. 11-21, 2008.

22. Noah Snavely, Steven M. Seitz, Richard Szeliski. "Modeling the World from Internet Photo Collections." *International Journal of Computer Vision (IJCV)*, 80(2), pp. 99-115, November 2008.

23. Noah Snavely, Steven M. Seitz, Richard Szeliski. "Photo Tourism: Exploring Photo Collections in 3D." *ACM Transactions on Graphics (Proceedings of SIGGRAPH 2006)*, 25(3), pp. 835-846, 2006.

24. Li Zhang, Noah Snavely, Brian Curless, Steven M. Seitz. "Spacetime Faces: High-resolution Capture for Modeling and Animation." *ACM Transactions on Graphics (Proceedings of SIGGRAPH 2004)*, 23(3), pp. 548-558, 2004.

25. Noah Snavely, Saumya Debray, Greg Andrews. "Unspeculation, Unscheduling, Unpredication: Reverse Engineering Itanium Executables." *IEEE Transactions on Software Engineering*, 31(2), pp. 99-115, February 2005.

Conference Publications

1. Qianqian Wang, Yen-Yu Chang, Ruojin Cai, Bharath Hariharan, Aleksander Holynski, Noah Snavely. "Tracking Everything Everywhere at Once." *Proceedings of International Conference on Computer Vision (ICCV)*, 2023. **Best student paper award.**

2. Ruojin Cai, Joseph Tung, Qianqian Wang, Bharath Hariharan, Noah Snavely. "Doppelgangers: Learning to Disambiguate Images of Similar Structures." *Proceedings of International Conference on Computer Vision (ICCV)*, 2023.

3. Kamal Gupta, Varun Jampani, Carlos Esteves, Abhinav Shrivastava, Ameesh Makadia, Noah Snavely, Abhishek Kar. "ASIC: Aligning Sparse in-the-wild Image Collections." *Proceedings of International Conference on Computer Vision (ICCV)*, 2023.

4. Zhengqi Li, Qianqian Wang, Forrester Cole, Richard Tucker, Noah Snavely. "DynIBaR: Neural Dynamic Image-Based Rendering." *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2023. **Best paper honorable mention.**

5. Lucy Chai, Richard Tucker, Zhengqi Li, Phillip Isola, Noah Snavely. "Persistent Nature: A Generative Model of Unbounded 3D Worlds." *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2023.

6. Haotong Lin, Qianqian Wang, Ruojin Cai, Sida Peng, Hadar Elor, Xiaowei Zhou, Noah Snavely. "Neural Scene Chronology." *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2023.

7. Hong-Xing Yu, Samir Agarwala, Charles Herrmann, Richard Szeliski, Noah Snavely, Jiajun Wu, Deqing Sun. "Accidental Light Probes." *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2023.

8. Mohammed Suhail, Erika Lu, Zhengqi Li, Noah Snavely, Leonid Sigal, Forrester Cole. "Omnimatte360: Associating Objects and their Effects in Unconstrained Monocular Video." *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2023.

9. Wenqi Xian, Aljaž Božič, Noah Snavely, Christoph Lassner. "Neural Lens Modeling." *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2023.

10. Yunzhi Zhang, Shangzhe Wu, Noah Snavely, Jiajun Wu. "Seeing a Rose in Five Thousand Ways." *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2023.

11. Eric Ming Chen, Jin Sun, Apoorv Khandelwal, Dani Lischinski, Noah Snavely, Hadar Averbuch-Elor. "What's in a Decade? Transforming Faces Through Time." *Proceedings of Eurographics*, 2023.

12. Richard Strong Bowen*, Richard Tucker*, Ramin Zabih, Noah Snavely. "Dimensions of motion: Learning to predict a subspace of optical flow from a single image." *Proceedings of International Conference on 3D Vision (3DV)*, 2022.

13. Kai Zhang, Nick Kolkin, Sai Bi, Fujun Luan, Zexiang Xu, Eli Shechtman, Noah Snavely."ARF: Artistic Radiance Fields." *Proceedings of European Conference on Computer Vision (ECCV)*, 2022.

14. Zhengqi Li, Qianqian Wang, Noah Snavely, Angjoo Kanazawa. "InfiniteNature-Zero: Learning Perpetual View Generation of Natural Scenes from Single Images." *Proceedings of European Conference on Computer Vision (ECCV)*, 2022.

15. Zhoutong Zhang, Forrester Cole, Zhengqi Li, Noah Snavely, Michael Rubinstein, William T. Freeman. "Structure and Motion for Casual Videos." *Proceedings of European Conference on Computer Vision (ECCV)*, 2022.

16. Jiaming Sun, Xi Chen, Qianqian Wang, Zhengqi Li, Hadar Averbuch-Elor, Xiaowei Zhou, Noah Snavely. "Neural 3D Reconstruction in the Wild." *Proceedings of SIGGRAPH*, 2022.

17. Mark Hamilton, Zhoutong Zhang, Bharath Hariharan, Noah Snavely, William T. Freeman. "Unsupervised Semantic Segmentation by Distilling Feature Correspondences." *Proceedings of International Conference on Learning Representations (ICLR)*, 2022.

18. Vickie Ye, Zhengqi Li, Richard Tucker, Angjoo Kanazawa, Noah Snavely. "Deformable Sprites for Unsupervised Video Decomposition." *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2022.

19. Kai Zhang, Fujun Luan, Zhengqi Li, Noah Snavely. "IRON: Inverse Rendering by Optimizing Neural SDFs and Materials from Photometric Images." *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2022.

20. Qianqian Wang, Zhengqi Li, David Salesin, Noah Snavely, Brian Curless, Janne Kontkanen. "3D Moments from Near-Duplicate Photos." *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2022.

21. Xiaoshi Wu*, Hadar Averbuch-Elor*, Jin Sun, Noah Snavely. "Towers of Babel: Combining Images, Language, and 3D Geometry for Learning Multimodal Vision." *Proceedings of the International Conference on Computer Vision (ICCV)*, 2021.

22. Claire Yuqing Cui*, Apoorv Khandelwal*, Yoav Artzi, Noah Snavely, Hadar Averbuch-Elor. "Who's Waldo? Linking People Across Text and Images." *Proceedings of the International Conference on Computer Vision (ICCV)*, 2021.

23. Andrew Liu*, Richard Tucker*, Varun Jampani, Ameesh Makadia, Noah Snavely, Angjoo Kanazawa. "Infinite Nature: Perpetual View Generation of Natural Scenes from a Single Image." *Proceedings of the International Conference on Computer Vision (ICCV)*, 2021.

24. Kai Zhang*, Fujun Luan*, Qianqian Wang, Kavita Bala, Noah Snavely. "PhySG: Inverse Rendering with Spherical Gaussians for Physics-based Material Editing and Relighting." *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2021.

25. Ruojin Cai, Bharath Hariharan, Noah Snavely, Hadar Averbuch-Elor. "Extreme Rotation Estimation using Dense Correlation Volumes." *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2021.

26. Qianqian Wang, Zhicheng Wang, Kyle Genova, Pratul Srinivasan, Howard Zhou, Jonathan T. Barron, Ricardo Martin-Brualla, Noah Snavely, Thomas Funkhouser. "IBRNet: Learning Multi-View Image-Based Rendering." *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2021.

27. Tomas Jakab, Richard Tucker, Ameesh Makadia, Jiajun Wu, Noah Snavely, Angjoo Kanazawa. "KeypointDeformer: Unsupervised 3D Keypoint Discovery for Shape Control." *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2021.

28. Shangzhe Wu, Ameesh Makadia, Jiajun Wu, Noah Snavely, Richard Tucker, Angjoo Kanazawa. "De-rendering the World's Revolutionary Artefacts." *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2021.

29. Zhengqi Li, Simon Niklaus, Noah Snavely, Oliver Wang. "Neural Scene Flow Fields for Space-Time View Synthesis of Dynamic Scenes." *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2021.

30. Kefan Chen, Noah Snavely, Ameesh Makadia. "Wide-Baseline Relative Camera Pose Estimation with Directional Learning." *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2021.

31. Yifan Wang, Andrew Liu, Richard Tucker, Jiajun Wu, Brian L. Curless, Steven M. Seitz, Noah Snavely. "Repopulating Street Scenes." *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2021.

32. Vincent Sitzmann, Eric Chan, Richard Tucker, Noah Snavely, Gordon Wetzstein. "MetaSDF: Meta-Learning Signed Distance Functions." *Proceedings of Neural Information Processing Systems (NeurIPS)*, 2020.

33. Yikai Li, Jiayuan Mao, Xiuming Zhang, William T. Freeman, Joshua Tenenbaum, Noah Snavely, Jiajun Wu. "Multi-Plane Program Induction with 3D Box Priors." *Proceedings of Neural Information Processing Systems (NeurIPS)*, 2020.

34. Jake Levinson, Carlos Esteves, Kefan Chen, Noah Snavely, Angjoo Kanazawa, Afshin Rostamizadeh, Ameesh Makadia. "An Analysis of SVD for Deep Rotation Estimation." *Proceedings of Neural Information Processing Systems (NeurIPS)*, 2020.

35. Zhengqi Li, Wenqi Xian, Abe Davis, Noah Snavely. "Crowdsampling the Plenoptic Function." *Proceedings of European Conference on Computer Vision (ECCV)*, 2020.

36. Qianqian Wang, Xiaowei Zhou, Bharath Hariharan, Noah Snavely. "Learning Feature Descriptors using Camera Pose Supervision." *Proceedings of European Conference on Computer Vision (ECCV)*, 2020.

37. Andrew Liu, Shiry Ginosar, Tinghui Zhou, Alexei A. Efros, Noah Snavely. "Learning to Factorize and Relight a City." *Proceedings of European Conference on Computer Vision (ECCV)*, 2020.

38. Ruojin Cai*, Guandao Yang*, Hadar Averbuch-Elor, Zekun Hao, Serge Belongie, Noah Snavely, Bharath Hariharan. "Learning Gradient Fields for Shape Generation." *Proceedings of European Conference on Computer Vision (ECCV)*, 2020.

39. Jin Sun, Hadar Averbuch-Elor, Qianqian Wang, Noah Snavely. "Hidden Footprints: Learning Contextual Walkability from 3D Human Trails." *Proceedings of European Conference on Computer Vision (ECCV)*, 2020.

40. Zhiqiu Lin, Jin Sun, Abe Davis, Noah Snavely. "Visual Chirality." *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2020. **Best paper nominee.**

41. Richard Tucker, Noah Snavely. "Single-View View Synthesis with Multiplane Images." *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2020.

42. Kai Zhang, Jiaxin Xie, Noah Snavely, Qifeng Chen. "Depth Sensing Beyond LiDAR Range." *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2020.

43. Zekun Hao, Hadar Averbuch-Elor, Noah Snavely, Serge Belongie. "DualSDF: Semantic Shape Manipulation using a Two-Level Representation." *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2020.

44. Pratul P. Srinivasan, Ben Mildenhall, Matthew Tancik, Jonathan T. Barron, Richard Tucker, Noah Snavely. "Lighthouse: Predicting Lighting Volumes for Spatially-Coherent Illumination." *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2020.

45. Muhammad Usman Rafique, Hunter Blanton, Noah Snavely, Nathan Jacobs. "Generative Appearance Flow: A Hybrid Approach for Outdoor View Synthesis." *Proceedings of the British Machine Vision Conference (BMVC)*, 2020.

46. Philippos Mordohai, Konstantinos Batsos, Ameesh Makadia, Noah Snavely. "NBVC: A Benchmark for Depth Estimation from Narrow-Baseline Video Clips." *Proceedings of International Conference on Intelligent Robots and Systems (IROS)*, 2020.

47. Utkarsh Mall, Kevin Matzen, Bharath Hariharan, Noah Snavely, Kavita Bala. "GeoStyle: Discovering Fashion Trends and Events." *Proceedings of the International Conference on Computer Vision (ICCV)*, 2019.

48. Wenqi Xian*, Zhengqi Li*, Matthew Fisher, Jonathan Eisenmann, Eli Shechtman, Noah Snavely. "UprightNet: Geometry-Aware Camera Orientation Estimation from Single Images." *Proceedings of the International Conference on Computer Vision (ICCV)*, 2019. (* indicates equal contribution.)

49. Zhengqi Li, Tali Dekel, Forrester Cole, Richard Tucker, Noah Snavely, Ce Liu, William T. Freeman. "Learning the Depths of Moving People by Watching Frozen People." *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2019. **Best paper honorable mention.**

50. Pratul Srinivasan, Richard Tucker, Jonathan T. Barron, Ravi Ramamoorthi, Ren Ng, Noah Snavely. "Pushing the Boundaries of View Extrapolation with Multiplane Images." *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2019. **Best paper finalist.**

51. Moustafa Meshry, Dan B Goldman, Sameh Khamis, Hugues Hoppe, Rohit Pandey, Noah Snavely, Ricardo Martin-Brualla. "Neural Rerendering in the Wild." *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2019. **Best paper finalist.**

52. John Flynn, Michael Broxton, Paul Debevec, Matthew DuVall, Graham Fyffe, Ryan Overbeck, Noah Snavely, Richard Tucker. "DeepView: View synthesis with Learned Gradient Descent." *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2019.

53. Howard Chen, Alane Suhr, Dipendra Misra, Noah Snavely, Yoav Artzi. "Touchdown: Natural Language Navigation and Spatial Reasoning in Visual Street Environments." *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2019.

54. Supasorn Suwajanakorn, Noah Snavely, Jonathan Tompson, Mohammad Norouzi. "Discovery of Latent 3D Keypoints via End-to-end Geometric Reasoning." *Proceedings of Neural Information Processing Systems (NeurIPS)*, 2018.

55. Zhengqi Li, Noah Snavely. "CGIntrinsics: Better Intrinsic Image Decomposition through Physically-Based Rendering." *Proceedings of European Conference on Computer Vision (ECCV)*, 2018.

56. Shubham Tusliani, Richard Tucker, Noah Snavely. "Layer-structured 3D Scene Inference via View Synthesis." *Proceedings of European Conference on Computer Vision (ECCV)*, 2018.

57. Zhengqi Li, Noah Snavely. "MegaDepth: Learning Single-View Depth Prediction from Internet Photos." *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2018.

58. Zhengqi Li, Noah Snavely. "Learning Intrinsic Image Decomposition from Watching the World." *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2018.

59. Tinghui Zhou, Matthew Brown, Noah Snavely, and David Lowe. "Unsupervised Learning of Depth and Ego-Motion from Video." In *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2017.

60. Paul Upchurch, Jacob Gardner, Kavita Bala, Robert Pless, Noah Snavely, Kilian Weinberger. "Deep Feature Interpolation for Image Content Changes." In *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2017.

61. Balazs Kovacs, Sean Bell, Noah Snavely, Kavita Bala. "Shading Annotations in the Wild." In *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2017.

62. Kyle Wilson, David Bindel, Noah Snavely. "When is Rotations Averaging Hard?" In *Proceedings of European Conference on Computer Vision (ECCV)*, 2016.

63. John Flynn, Ivan Neulander, James Philbin, Noah Snavely. "DeepStereo: Learning to Predict New Views from the World's Imagery." In *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2016.

64. Kevin Matzen, Noah Snavely. "BubbLeNet: Foveated Imaging for Visual Discovery." In *Proceedings of International Conference on Computer Vision (ICCV)*, 2015.

65. Scott Wehrwein, Kavita Bala, Noah Snavely. "Shadow Detection and Sun Direction in Photo Collections." In *Proceedings of 3DV*, 2015.

66. Sean Bell, Paul Upchurch, Noah Snavely, Kavita Bala. "Material Recognition in the Wild with the Materials in Context Database." In *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2015.

67. Kevin Matzen, Noah Snavely. "Scene Chronology." In *Proceedings of the European Conference on Computer Vision (ECCV)*, 2014. **Best paper award.**

68. Kyle Wilson, Noah Snavely. "Robust Global Translations using 1DSfM." In *Proceedings of the European Conference on Computer Vision (ECCV)*, 2014.

69. Daniel Hauagge, Scott Wehrwein, Paul Upchurch, Kavita Bala, Noah Snavely. "Reasoning about Photo Collections using Models of Outdoor Illumination." In *Proceedings of the British Machine Vision Conference (BMVC)*, 2014.

70. Song Cao, Noah Snavely. "Minimal Scene Descriptions from Structure from Motion Models." In *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2014.

71. Kevin Matzen, Noah Snavely. "NYC3DCars: A Dataset of 3D Vehicles with Geographic Context." In *Proceedings of International Conference on Computer Vision (ICCV)*, 2013.

72. Kyle Wilson, Noah Snavely. "Network Principles for SfM: Disambiguating Repeated Structures with Local Context." In *Proceedings of International Conference on Computer Vision (ICCV)*, 2013.

73. Daniel Cabrini Hauagge, Scott Wehrwein, Kavita Bala, Noah Snavely. "Photometric Ambient Occlusion." In *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2013.

74. Song Cao, Noah Snavely. "Graph-Based Discriminative Learning for Location Recognition." In *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2013.

75. Chun-Po Wang, Kyle Wilson, Noah Snavely. "Creating Georegistered Point Clouds using Geographic Data." In *Proceedings of 3DV*, 2013.

76. Yunpeng Li, Noah Snavely, Daniel P. Huttenlocher, Pascal Fua. "Worldwide Pose Estimation using 3D Point Cloud Models." In *Proceedings of the European Conference on Computer Vision (ECCV)*, 2012.

77. Yin Lou, Noah Snavely, Johannes Gehrke. "MatchMiner: Mining Spanning Structure in Large Image Collections." In *Proceedings of the European Conference on Computer Vision (ECCV)*, 2012.

78. Daniel Cabrini Hauagge, Noah Snavely. "Image Matching using Local Symmetry Features." In *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2012.

79. Amir Sadovnik, Yi-I Chiu, Noah Snavely, Shimon Edelman, Tsuhan Chen. "Image Description with a Goal: Building Efficient Discriminating Expressions for Images." In *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2012.

80. Adarsh Kowdle, Noah Snavely, Tsuhan Chen. "Recovering Depth of a Dynamic Scene Using Real World Motion Prior." In *Proc. International Conference on Image Processing*, 2012. **Best student paper award.**

81. David Crandall, Andrew Owens, Noah Snavely, Daniel P. Huttenlocher. "Discrete-Continuous Optimization for Large-Scale Structure from Motion." In *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2011. **Best paper award runner-up.**

82. Rahul Garg, Deva Ramanan, Noah Snavely, Steven M. Seitz. "Where's Waldo: Matching People in Images of Crowds." In *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2011.

83. Kathleen Tuite, Noah Snavely, Dun-Yu Hsiao, Nadine Tabing and Zoran Popović. "PhotoCity: Training Experts at Large-scale Image Acquisition through a Competitive Game." In *Proceedings of Conference on Human Factors in Computing Systems (CHI)*, 2011.

84. Yunpeng Li, Noah Snavely, Daniel P. Huttenlocher. "Location Recognition using Prioritized Feature Matching." In *Proceedings of the European Conference on Computer Vision (ECCV)*, 2010.

85. Sameer Agarwal, Noah Snavely, Steven M. Seitz, Richard Szeliski. "Bundle Adjustment in the Large." In *Proceedings of the European Conference on Computer Vision (ECCV)*, 2010.

86. Kathleen Tuite, Noah Snavely, Dun-Yu Hsaio, Adam M. Smith, Zoran Popović. "Reconstructing the World in 3D: Bringing Games with a Purpose Outdoors." In *Proceedings of Foundations of Digital Games (FDG)*, 2010.

87. Ruogu Fang, Kevin D. Tang, Noah Snavely, Tsuhan Chen. "Towards Computational Models of Kinship Verification." In *Proc. International Conference on Image Processing*, 2010. **Best paper award.**

88. Sameer Agarwal, Noah Snavely, Ian Simon, Steven M. Seitz, Richard Szeliski. "Building Rome in a Day." In *Proceedings of the International Conference on Computer Vision (ICCV)*, 2009. **Helmholtz Prize winner at ICCV 2019.**

89. Rahul Garg, Hao Du, Steven M. Seitz, Noah Snavely. "The Dimensionality of Scene Appearance." In *Proceedings of the International Conference on Computer Vision (ICCV)*, 2009.

90. Noah Snavely, Steven M. Seitz, Richard Szeliski. "Skeletal Graphs for Efficient Structure from Motion." In *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2008.

91. Sameer Agarwal, Noah Snavely, Steven M. Seitz. "Fast Algorithms for L_∞ Problems in Multiple View Geometry." In *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, 2008.

92. Michael Goesele, Noah Snavely, Brian Curless, Steven M. Seitz, Hugues Hoppe. "Multi-View Stereo for Community Photo Collections." In *Proceedings of the International Conference on Computer Vision (ICCV)*, 2007.

93. Ian Simon, Noah Snavely, Steven M. Seitz. "Scene Summarization for Online Image Collections." In *Proceedings of the International Conference on Computer Vision (ICCV)*, 2007.

94. Pravin Bhat, C. Lawrence Zitnick, Noah Snavely, Aseem Agarwala, Maneesh Agrawala, Michael Cohen, Brian Curless, Sing Bing Kang. "Using Photographs to Enhance Videos of a Static Scene." In *Proceedings of the Eurographics Symposium on Rendering (EGSR)*, pp. 327-338, 2007.

95. Pravin Bhat, Ke Zheng, Noah Snavely, Aseem Agarwala, Maneesh Agrawala, Michael Cohen, Brian Curless. "Piecewise Image Registration in the Presence of Multiple Large Motions." In *Proceedings of Computer Vision and Pattern Recognition (CVPR)*, pp. 2491-2497, 2006.

96. Noah Snavely, C. Lawrence Zitnick, Sing Bing Kang, Michael Cohen. "Stylizing 2.5-D Video." In *Proceedings of the International Symposium on Non-Photorealistic Animation and Rendering (NPAR)*, pp. 63-69, 2006.

97. Noah Snavely, Saumya Debray, Greg Andrews. "Unspeculation." In *Proceedings of the International Conference on Automated Software Engineering (ASE)*, pp. 205-214, 2003.

Preprints

1. Kai Zhang, Gernot Riegler, Noah Snavely, Vladlen Koltun. "NeRF++: Analyzing and Improving Neural Radiance Fields." *arXiv preprint*, 2020.

2. Kevin Matzen, Kavita Bala, Noah Snavely. "StreetStyle: Exploring World-wide Clothing Styles from Millions of Photos." *arXiv preprint*, 2017.

Workshop Papers

1. Margot Hanley, Apoorv Khandelwal, Hadar Averbuch-Elor, Noah Snavely, Helen Nissenbaum. "An Ethical Highlighter for People-Centric Dataset Creation." *NeurIPS Workshop on Navigating the Broader Impacts of AI Research*, 2020.

2. Kai Zhang, Jin Sun, Noah Snavely. "Leveraging Vision Reconstruction Pipelines for Satellite Imagery." *ICCV Workshop on 3D Reconstruction in the Wild (3DRW)*, 2019.

3. Song Cao, Noah Snavely. "Learning to Match Images in Large-Scale Collections." *ECCV Workshop on Web-Scale Vision and Social Media*, 2012.

4. Ryan S. Kaminsky, Noah Snavely, Steven M. Seitz, Richard Szeliski. "Alignment of 3D Point Clouds to Overhead Images." *IEEE Workshop on Internet Vision*, 2009.

Advising

Ph.D. Students Advised and Co-Advised
Ruojin Cai, expected 2024.
Qianqian Wang, *Modeling the 3D World and its Motion*, 2023. Next affiliation: Postdoctoral scholar at UC Berkeley.
Wenqi Xian, *Neural Representation for Camera Models and Dynamic Scenes*, 2023. Next affiliation: Netflix Research.
Kai Zhang, *3D Content Creation from Images*, 2023. Next affiliation: Adobe Research.
Zhengqi Li, *Learning Geometry, Appearance, and Motion in the Wild*, 2021. Next affiliation: Google Research.
Scott Wehrwein, *Light and Motion: Modeling and Visualizing How Scenes Change Over Time*, 2018. Next affiliation: Western Washington University.
Paul Upchurch, *Data-Driven Material Recognition and Photorealistic Image Editing*, 2018. Next affiliation: Apple.
Kevin Matzen, *Computer Vision for Spatio-Temporal Analysis of Internet Photo Collections*, 2016. Next affiliation: Facebook Research.
Sean Bell, *Understanding Visual Appearance on the Web using Large-Scale Crowdsourcing and Deep Learning*, 2016. Next affiliation: Co-founder at Grokstyle → Facebook.
Kyle Wilson, *Robustly Modeling the World from Photos*, 2016. Next affiliation: Assistant Professor at Washington College.
Song Cao, *Graph-based Learning from Large Image Collections*, 2015. Next affiliation: Amazon Research.
Daniel Cabrini Hauagge, *Vision Under Changing Scene Appearance: Describing the World Through Light and Symmetries*, 2014. Next affiliation: Postdoc at Cornell Tech.

Postdoctoral Scholars Mentored
Hadar Averbuch-Elor, 2019-2022. Next affiliation: Assistant Professor at Tel Aviv University.
Jin Sun, 2018-2021. Next affiliation: Assistant Professor at University of Georgia.

Other Students Advised and Co-Advised
Joseph Tung, Cornell B.S. 2024.
Eric Chen, Cornell B.S. 2023.

Claire Yuqing Cui, Cornell B.S. 2020.
Apoorv Khandelwal, Cornell B.S. 2020. Ph.D. candidate at Brown.
Rahul Kindi, Cornell B.S. 2020.
Zhiqiu Liu, Cornell B.S. 2020. Ph.D. candidate at CMU.
Rafael Haber, Cornell B.S. 2019.
Rohun Tripathi, Cornell Tech M.Eng. 2018.
Jeremy Feinstein, Cornell B.S. 2014.
Brian Orecchio, Cornell M.Eng. 2013.
Ariel Schwartz, Cornell B.S. 2013.
Chun-Po Wang, Cornell M.S. 2012. Current employment: Google.
Gautam Kamath, Cornell B.S. 2012. Ph.D. candidate at MIT → Faculty member at Waterloo.
Yu (Richard) Cheng, Cornell B.S. 2012.
Aaron Chuang, Cornell M.Eng. 2011.
Zhe (Elena) Yang, Cornell B.S. 2011.
Andrew Owens, Cornell B.S. 2010. Ph.D. candidate at MIT → Faculty member at UMich.

Thesis Committees / Thesis Examiner
Noriyuki Kojima (Cornell CS)
Ge Gao (Cornell CS)
Luming Tang (Cornell CS)
Xi Deng (Cornell CS)
Jason Zhang (CMU)
Mihai Dusmanu (ETH Zurich)
Nathaniel Chodosh (CMU)
Kamal Gupta (University of Maryland)
Guandao Yang (Cornell CS)
Zekun Hao (Cornell CS)
Olivia Wiles (University of Oxford)
Boyi Li (Cornell CS)
Chengzhou Tang (Simon Fraser University)
Peter Hedman (UCL)
Yu-Chuan Su (UT Austin CS)
Xun Huang (Cornell CS)
Alane Suhr (Cornell CS)
Valts Blukis (Cornell CS)
Dipendra Misra (Cornell CS)
Yin Cui (Cornell CS)
Chris Sweeney (UCSB CS)
Michal Havlena (Czech Technical University)
Yong-Dian Jian (Georgia Tech)
Austin Abrams (Washington University)
Hani Altwaijry (Cornell CS)
Mohammad Moghimi (Cornell CS)
Ivaylo Boyadzhiev (Cornell CS)
Yue Gao (Cornell CS)
Yin Lou (Cornell CS)
Ruben Sibos (Cornell CS)
Tsung-Yi Lin (Cornell ECE)
Ruogu Fang (Cornell ECE)
Sergei Fotin (Cornell ECE)

Zhaoyin Jia (Cornell ECE)
Jennifer Padgett (Cornell MAE)
Yiting Xie (Cornell ECE)
Frank Havlak (Cornell MAE)
Peter Radecki (Cornell MAE)
Kevin Wyffels (Cornell MAE)

Teaching

Introduction to Computer Vision (CS5670)	Spring 2023
Introduction to Computer Vision (CS5670)	Spring 2022
Introduction to Computer Vision (CS5670)	Spring 2021
Introduction to Computer Vision (CS5670)	Spring 2020
Introduction to Computer Vision (CS5670)	Spring 2019
Introduction to Computer Vision (CS5670)	Spring 2018
Introduction to Computer Vision (CS5670)	Spring 2017
Cornell CURIE Academy	Summer 2015
Introduction to Computer Vision (CS4670/5670)	Fall 2013
Intro to Computing with Matlab and Robotics (CS1114)	Spring 2013
Introduction to Computer Vision (CS4670/5670)	Fall 2012
Intro to Computing with Matlab and Robotics (CS1114)	Spring 2012
Special Topics in Computer Vision (CS7670)	Fall 2011
Computer Vision (CS6670)	Spring 2011
Introduction to Computer Vision (CS4670)	Fall 2010
Intro to Computing with Matlab and Robotics (CS1114)	Spring 2010
Computer Vision (CS6670)	Fall 2009
Intro to Computing with Matlab and Robotics (CS1114)	Spring 2009

Invited Talks

Towards Generative Architecture
ICCV Workshop on Computer Vision-Aided Architectural Design, October 3, 2023.

Total Motion from Video
ICCV Workshop on Frontiers of Monocular 3D Perception, October 3, 2023.

Learning 3D from Moving Pictures
UIUC Vision Seminar, February 15, 2022.

Reconstructing the 3D World from Images of Everything
NIST, February 14, 2022.

Learning All about 3D Scenes from the World's Video
Stanford Vision Seminar, January 26, 2022.

Towers of Babel: Marrying 3D and Language
Unsupervised 3D Learning in the Wild Workshop, ICCV 2021, October 11, 2021.

Single-View Shape, Materials, and Reflection
Frontiers of Monocular 3D Perception Workshop, CVPR 2021, June 25, 2021.

On Reflection
GRAIL Retreat Invited Speaker, April 23, 2021.
MIT Vision Seminar, May 4, 2021.
Computational Cameras and Displays Workshop, CVPR 2021, June 20, 2021.

Capturing and Rendering the World from Photos
Penn State IST Distinguished Lecture Series, March 2021.

The Plenoptic Camera
CMU VASC Seminar, December 2020.
University of Hong Kong "When 3D Reconstruction Meets Deep Learning" workshop, January 2021.
3DGV Seminar on 3D Geometry & Vision.

Reconstructing the Plenoptic Function
ECCV Workshop on Learning 3D Representations for Shape and Appearance, August 2020.
Distinguished Lecture, Max Planck Institute for Intelligent Systems, October 2020.
TU Munich AI Guest Lecture Series, October 2020.

Reconstructing the 3D World from Images of Everything
Keynote, *Cornell Initiative for Digital Agriculture Workshop*, October 2019.

End-to-End Geometric Learning
CVPR Landmark Recognition Workshop, June 2019.

Learning 3D Geometry from the Internet
CVPR Workshop on Learning from Unlabeled Video, June 2019.

VR+AR
Pursuit, April 2019.

Learning 3D Geometry from the Internet
CVPR Workshop on Deep Learning for Visual SLAM, June 2018.

VR+AR
Coalition for Queens (C4Q), February 2018.

Viewly Supervised 3D Vision and Graphics
CVPR Bridge to 3D Workshop, July 2017.

Planet-Scale Visual Understanding
Intel, November 2015.
UT Austin Computer Science Colloquium, February 2015.
University of Arizona Cognitive Science Colloquium, February 2015.
SIGGRAPH Significant New Researcher Talk, August 2014.

Grounding Vision in the Real World
RSS RGB-D Workshop, July 2014.

3D Vision Beyond Geometry
Bay Area Vision Meeting, June 2014.

The Distributed Camera
BigVision Workshop, CVPR 2014.
Stanford University, November 2013.
UC Berkeley, November 2013.
Princeton University, October 2013.
Microsoft Faculty Retreat, July 2013
Carnegie Mellon University, April 2013.
University of Pennsylvania, April 2013.
University of Virginia, **Top Gun Series**, December 2012.
Facebook, August 2012.
Google Mountain View, August 2012.
Google New York, July 2012.
International Workshop in Computer Vision (Siracusa, Italy), May 2012.
MIT, March 2012.

Place Graphs
CVPR Workshop on Visual Analysis and Geo-Localization of Large-Scale Imagery, July 2013.

A World-wide Geometric Database for Location Recognition
ECCV Workshop on Visual Analysis and Geo-Localization of Large-Scale Imagery, November 2012.
Czech Technical University, Prague, October 2012.

Building the World from Images
University of Rochester, September 2011.
University of Maryland, Baltimore County, April 2011.

Modeling the World from Internet Photo Collections
Kodak Research, December 2010.
Rochester Institute of Technology, December 2010.

Building Rome in a Day
Microsoft Research Asia, July 2010.
Tsinghua University, July 2010.
Peking University, July 2010.

PhotoCity: Reconstructing the World through an Online Game
Microsoft Research, April 2010.

Exploiting Online Photo Collections
International Conference on Computation Photography (ICCP) 2010 Tutorial, March 2010.

Modeling and Visualizing the World through Internet Photo Collections
MIT, Cambridge, MA, November 2008.
Harvard University, Cambridge, MA, November 2008.
University of North Carolina, Chapel Hill, January 2009.
MIT Lincoln Labs, Lexington, MA, March 2009.
NASA Goddard Space Flight Center, Greenbelt, MD, April 2009.

Navigating the World's Photographs (with Steven M. Seitz and Michael Goesele)
Nokia Research Center, Palo Alto, CA, April 2007.
Google Tech Talk, Mountain View, CA, July 2007.

Photosynth, Object Movies, and other Cool Stuff (with Drew Steedly)
Microsoft Research Symposium on Computational Photography, July 2007.

Photo Tourism and Photosynth (with Rick Szeliski and Blaise Agüera y Arcas)
Keynote, University of Washington Computer Science and Engineering Affiliates Meeting, October 2006.

Photo Tourism (with Rick Szeliski)
BIRS Workshop on Mathematical Methods in Computer Vision, Banff, Alberta, October 2006.

Tutorials

State of the art 3D reconstruction techniques: Very large scale 3D reconstruction and the role of priors (with Yasutaka Furukawa)
Computer Vision and Pattern Recognition (CVPR) 2014

Scene Reconstruction from Community Photo Collections (with Michael Goesele and Hendrik Lensch)
Computer Vision and Pattern Recognition (CVPR) 2010.

Photo Tourism and IM2GPS (with James Hays)
Computer Vision and Pattern Recognition (CVPR) 2009.

Professional Activities

Program Chair, 3DV 2016.
Diversity, Equity, and Inclusion Co-Chair, CVPR 2022.
Area Chair, CVPR 2024, 2023, 2021, 2019, 2018, 2015 & 2013, ICCV 2021, ECCV 2016 & 2014.
Program Committee, SIGGRAPH 2018, 2017 & 2012, SIGGRAPH Asia 2013.
SIGGRAPH Technical Papers Sort, 2021, 2020.
SIGGRAPH Asia Technical Papers Sort, 2019.
Co-organizer, ECCV 2020 Workshop on 4D Vision.
Associate Editor, *Transactions on Graphics (TOG)*, 2013-2018.
Associate Editor, *Transactions on Pattern Analysis and Machine Intelligence (PAMI)*, 2014-2019.
Board member for \Art (`https://backslashart.org/`), 2019-present.