

TIANFAN XUE

1600 Amphitheatre Pkwy, Mountain View, CA 94043, USA
Homepage: <http://people.csail.mit.edu/tfxue/>
Linkedin: <http://www.linkedin.com/pub/tianfan-xue/16/167/540/>
Email: tianfan.xue@gmail.com, tianfan@google.com

Research Interests

- Computer vision, image processing, machine learning, and computer graphics

Education

- **Ph.D. (Computer Sci.), Massachusetts Institute of Technology** Aug. 2012 – Aug. 2017
– Supervisor: Prof. William T. Freeman
- **M.Phil. (Information Eng.), Chinese University of Hong Kong** Aug. 2009 – Jul. 2011
– GPA: 4.0/4.0, Supervisor: Prof. Xiaoou Tang
- **B. Eng. (Computer Sci. & Tech.), Tsinghua University** Aug. 2005 – Jul. 2009
– GPA: 92.06/100.00, Ranking: 3/162

Working Experience

- **Senior Software Engineer, Google, Mountain View, C.A., U.S.A.** Aug. 2017 – Current
– Mission: Research on better image and video processing algorithms.
– Manager: Dr. Sam Hasinoff
- **Research Intern, Facebook** May. 2016 – Aug. 2016
– Mission: Research on image-based rendering techniques
– Mentor: Dr. Richard Szeliski
- **Research Intern, Microsoft Research** Jun. 2015 – Sept. 2015
– Mission: Research on stereo matching techniques
– Mentor: Dr. Richard Szeliski
- **Research Intern, Microsoft Research** Jun. 2014 – Aug. 2014
– Mission: Research on obstruction removal techniques
– Mentor: Dr. Ce Liu
- **Research Assistant, Chinese University of Hong Kong** Aug. 2011 – Jul. 2012
– Mission: Research on 3D reconstruction techniques
– Supervisor: Prof. Xiaoou Tang

Honors and Awards

- Outstanding reviewers of CVPR conference 2018
- Postgraduate Studentship in the Chinese University of Hong Kong 2009–2011
- Outstanding TA Award in the Chinese University of Hong Kong 2010
- Outstanding undergraduate thesis of Tsinghua University 2009
- National Scholarship 2007
- First Class Scholarship of Tsinghua University 2007

Publications

- **Conferences**

- X. Zhang, S. Fanello, Y.T. Tsai, T. Sun, **T. Xue**, R. Pandey, S. Orts-Escolano, P. Davidson, C. Rhemann, P. Debevec, J.T. Barron, “Neural light transport for relighting and view synthesis,” **ACM SIGGRAPH, Oral**, 2021.
- O. Liba, K. Murthy, Y.T. Tsai, T. Brooks, **T. Xue**, N. Karnad, Q. He, J.T. Barron, D. Sharlet, R. Geiss, S.W. Hasinoff, 2019. “Handheld mobile photography in very low light,” **ACM SIGGRAPH, Oral**, 2019.
- T. Brook, B. Mildenhall, **T. Xue**, Chen. T, D. Sharlet, J.T. Barron, “Unprocessing images for learned raw denoising,” in Proc. of IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), **Oral**, 2019.
- J. Wang, **T. Xue**, J.T. Barron, J. Chen, “Stereoscopic dark flash for low-light photography,” in Proc. of IEEE International Conference on Computational Photography (**ICCP**), **Oral**, 2019.
- X. Zhang, T. Dekel, **T. Xue**, T. Owen, Q. He, J. Wu, S. Mueller, W.T. Freeman, “Mosculp: Interactive visualization of shape and time,” in Proc. of ACM Symposium on User Interface Software and Technology (**UIST**), **Oral**, 2018.
- X. Sun, J. Wu, X. Zhang, Z. Zhang, C. Zhang, **T. Xue**, J. B. Tenenbaum, W. T. Freeman, “Pix3D: Dataset and Methods for Single-Image 3D Shape Modeling,” in Proc. of IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2018.
- **T. Xue**, J. Wu, Z. Zhang, C. Zhang, J. B. Tenenbaum, W. T. Freeman, “Seeing tree structure from vibration,” in Proc. of IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2018.
- J. Wu, Y. Wang, **T. Xue**, X. Sun, W. T. Freeman, J. B. Tenenbaum, “MarrNet: 3d shape reconstruction via 2.5 d sketches,” in Proc. of the Annual Conference on Neural Information Processing Systems (**NIPS**) 2017.
- **T. Xue***, J. Wu*, K. L. Bouman, W. T. Freeman, “Visual Dynamics: Probabilistic Future Frame Synthesis via Cross Convolutional Networks,” in Proc. of the Annual Conference on Neural Information Processing Systems (**NIPS**), **Oral**, 2016.
- J. Wu*, **T. Xue***, J. Lim, Y. Tian, J. B. Tenenbaum, A. Torralba, W. T. Freeman, “Single Image 3D Interpreter Network,” in Proc. of European Conference on Computer Vision (**ECCV**) 2016.
- J. Wu, C. Zhang, **T. Xue**, W. T. Freeman, J. B. Tenenbaum, “Learning a Probabilistic Latent Space of Object Shapes via 3D Generative-Adversarial Modeling”, in Proc. of the Annual Conference on Neural Information Processing Systems (**NIPS**), 2016
- **T. Xue**, M. Rubinstein, C. Liu, W. T. Freeman, “A Computational Approach for Obstruction-Free Photography,” **ACM SIGGRAPH, Oral**, 2015.
- **T. Xue**, H. Mobahi, F. Durand, W. T. Freeman, “The Aperture Problem for Refractive Motion,” in Proc. of IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2015.
- **T. Xue**, M. Rubinstein, N. Wadhwa, A. Levin, F. Durand, W. T. Freeman, “Refraction Wiggles for Measuring Fluid Depth and Velocity from Video,” in Proc. of European Conference on Computer Vision (**ECCV**), **Oral**, 2014.
- **T. Xue**, J. Liu, X. Tang, “Example-Based 3D Object Reconstruction for Line Drawing,” in Proc. of IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**), 2012.

* indicates equal contribution.

- Y. Li, **T. Xue**, L. Sun, J. Liu, “Joint Example-based Depth Map Super-Resolution,” in Proc. of IEEE International Conference on Multimedia & Expo (**ICME**), **Oral**, 2012.
- **T. Xue**, J. Liu, X. Tang, “Symmetric Piecewise Planar Object Reconstruction from a Single Image,” in Proc. of IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**) 2011.
- Y. Jie, L. Sun, **T. Xue**, “Fast Frame-rate Up-conversion of Depth Video via Video Coding,” in Proc. of ACM Multimedia 2011 (**ACM MM**), 2011.
- **T. Xue**, J. Liu, X. Tang, “Object Cut: Complex 3D object reconstruction through line drawing separation,” in Proc. of IEEE Conference on Computer Vision and Pattern Recognition (**CVPR**) 2010.
- Y. Tang, **T. Xue**, J. Jiang, B. Liu, “Deflation DFA: Remembering History is Adequate,” in Proc. of IEEE International Conference on Communications (**ICC**), 2010.

- **Journals**

- **T. Xue**, A. Owen, D. Scharstein, M. Goesele, R. Szeliski, “Multi-frame stereo matching with edges, planes, and superpixels,” **Image and Vision Computing**, 91, pp.103771, 2019.
- **T. Xue**, J. Wu, K.L. Bouman, W.T. Freeman, “Visual dynamics: Stochastic future generation via layered cross convolutional networks,” *IEEE transactions on pattern analysis and machine intelligence (T-PAMI)*, 41(9), pp.2236-2250, 2018.
- **T. Xue**, Chen, B., Wu, J., Wei, D. and Freeman, W.T., “Video enhancement with task-oriented flow,” *International Journal of Computer Vision (IJCV)*, 8, pp.1106-1125, 2018.
- J. Wu*, **T. Xue***, J. Lim, Y. Tian, J. Tenenbaum, A. Torralba, W. T. Freeman, “3D Interpreter Networks for Viewer-Centered Wireframe Modeling,” *International Journal of Computer Vision (IJCV)*, pp.1009-1026, 2018.
- S. Oron, T. Dekel, **T. Xue**, W. T. Freeman, S. Avidan, “Best-Buddies Similarity – Robust Template Matching using Mutual Nearest Neighbors,” *IEEE Transactions on Pattern Analysis and Machine Intelligence (T-PAMI)*, 2017.
- C. Zou, **T. Xue**, X. Peng, H. Li, B. Zhang, P. Tan, J. Liu, “An example-based approach to 3D man-made object reconstruction from line drawings,” **Pattern Recognition**, 2017.
- J. Yin, H. Zhu, D. Yuan, **T. Xue**, “Sparse representation over discriminative dictionary for stereo matching,” **Pattern Recognition**, 71, pp.278-289, 2017.
- **T. Xue**, J. Liu, X. Tang, “3D Modeling from a Single View of a Symmetric Object,” *Transactions on Image Processing (TIP)*, 2012.

- **Patents**

- T. Xue, J. Wang, J. Chen, J.T. Barron, “Dark Flash Photography With A Stereo Camera,” US Patent App. 16120666, 2020
- W. T. Freeman, F. Durand, T. Xue, M. Rubinstein, N. Wadhwa, “Devices for refractive field visualization,” US Patent App. 15819791, 2018
- W. T. Freeman, F. Durand, T. Xue, M. Rubinstein, N. Wadhwa, “Methods and apparatus for refractive flow measurement,” US Patent PN/9710917, 2017

Services

- **Conference organizers**

- Conference on Computer Vision and Pattern Recognition, 2020, Web chair

- **Conference reviewers**

- Conference on Computer Vision and Pattern Recognition, 2016, 2017, 2018, 2020, 2021
- European Conference on Computer Vision, 2016, 2018, 2020
- International Conference on Computer Vision, 2017, 2019, 2021
- ACM SIGGRAPH, 2018
- ACM SIGGRAPH Asia, 2017
- Pacific Graphics, 2018
- International Conference on Intelligent Robots, 2017
- IEEE International Symposium on Circuits & Systems, 2017
- Conference on Neural Information Processing Systems, 2016

- **Journal reviewers**

- IEEE Transactions on Pattern Analysis and Machine Intelligence (T-PAMI)
- IEEE Transactions on Computational Imaging (TCI)
- IEEE Transactions on Multimedia (TMM)
- IEEE Transactions on Image Processing (TIP)
- IEEE Transactions on Circuits and Systems for Video Technology (T-CSVT)
- IEEE Transactions on Systems, Man, and Cybernetics
- IEEE Computer Graphics and Applications
- Artificial Intelligence
- Computer Vision and Image Understanding (CVIU)
- Cognitive Computation
- Computers and Electrical Engineering
- Image and Vision Computing (IVC)
- International Journal of Computer Vision (IJCV)
- Journal of the Optical Society of America
- Machine Vision and Applications
- Pattern Recognition Letter