

Qixing Huang

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Date of CV: August 2016

Education

- 01/2012 Ph.D Computer Science, Stanford University
Advisor: Prof. Leonidas Guibas
- 07/2005 M.S. Computer Science, Tsinghua University, Beijing, China
Advisor: Prof. Shimin Hu
- 07/2002 B.S. Computer Science, Tsinghua University, Beijing, China
Advisor: Prof. Shimin Hu

Academic Experience

- 08/2016 –current Assistant Professor, The University of Texas at Austin
- 09/2014 –07/2016 Research Assistant Professor, Toyota Technological Institute at Chicago
- 01/2012 –09/2014 Post-doc Researcher, Stanford University
Advisor: Prof. Leonidas Guibas
- 09/2005 –06/2006 Research Assistant, Technology University of Vienna, Austria
Advisor: Prof. Helmut Pottmann

Industrial Experience

- 03/2015 –current Consulting, Intel Labs, Santa Clara, CA. Collaborate with Dr. Vladlen Koltun on 3D reconstruction from images.
- 01/2012 –current Consulting, XYZRGB Inc., Canada. Provide technical and algorithmic supports for processing various static and dynamic 3D scans.
- 06/2010 –09/2010 Research Internship, Google Inc., Mountain View, CA. Worked on simultaneously labeling and segmentation of street scenes.
- 06/2009 –09/2009 Research Internship, Google Inc., Mountain View, CA. Worked on an accurate SLAM algorithm for Google streeview project.
- 06/2008 –09/2008 Research Internship, Adobe Systems, Stanford, CA. Worked on structure preserving resizing of images and vector art.

Research Interests

- Big Data
- Computer Graphics
- Computer Vision
- Computational Biology
- Machine Learning

Awards

2013	Symposium on Geometry Processing 2013 Best Paper Award
2011,2012	Computer Aided Geometric Design Most Cited Paper Award
2008	Mr. and Mrs. Chin-Nan Chen Stanford Graduate Fellowship
2003,2004	Lenovo Fellowship

Grants

- Co-principal investigator (with Jinbo Xu), *Convex optimization for protein-protein interaction network alignment*. NSF, CCF Algorithm Foundations, \$299,994, 2016–2019.
- Co-principal investigator (with Jason Salavon, Sean Keller and William Catino). *Machine Learning and Questions of Quality in Art and Design*. University of Chicago Neubauer Faculty Research Project Narrative, \$125,000, 2016–2018.
- Co-principal investigator (with Leonidas Guibas), *Collaborative Research: Joint Analysis of Correlated Data*. NSF, DMS-1521583, \$109,920 (My share), 2015–2018.
- Principal investigator, *Intel Gift Award*. Intel Labs, \$60,000, 2015–current.
- Principal investigator, *Adobe Gift Award*, Adobe Research, \$29,500, 2014–current.

Papers

SIGGRAPH & Transactions on Graphics (TOG)

1. Tuanfeng WangYang, Hao Su, **Qixing Huang**, Jinglei Huang, Leonidas Guibas, and Niloy Mitra. *Unsupervised Texture Transfer from Images to Model Collections*. ACM Transactions on Graphics 35(6), Proc. SIGGRAPH Asia 2016.
2. YI LI, Vladmir Kim, Dyugu Ceylan, I-Chao Chen, Mengyuan Yan, Hao Su, Cewu Lu, **Qixing Huang**, Alla Sheffer, and Leonidas Guibas. *A Scalable Active Framework for Region Annotation in 3D Shape Collections*. ACM Transactions on Graphics 35(6), Proc. SIGGRAPH Asia 2016.

3. Haisen Zhao, Fanglin Gu, **Qixing Huang**, J. A. Garcia Galicia, Yong Chen, Changhe Tu, Bedrich Benes, Hao Zhang, Daniel Cohen-Or, and Baoquan Chen. *Connected Fermat Spirals for Layered Fabrication*. ACM Transactions on Graphics 35(4), Proc. SIGGRAPH 2016.
4. Xuelin Chen, Hao Zhang, Jinjie Lin, Ruizhen Hu, Lin Lu, **Qixing Huang**, Bedrich Benes, Daniel Cohen-Or, and Baoquan Chen. *Dapper: Decompose-and-Pack for 3D Printing*. ACM Transactions on Graphics 34(6), Proc. SIGGRAPH Asia 2015.
5. **Qixing Huang**, Hai Wang, and Vladlen Koltun. *Single-View Reconstruction via Joint Analysis of Image and Shape Collections*. ACM Transactions on Graphics 34(4), Proc. SIGGRAPH 2015.
6. Tianqiang Liu, Siddhartha Chaudhuri, Vladimir Kim, **Qixing Huang**, Niloy J. Mitra, and Thomas Funkhouser. *Creating Consistent Scene Graphs Using a Probabilistic Grammar*. ACM Transactions on Graphics 33(6), Proc. SIGGRAPH Asia 2014.
7. **Qixing Huang**, Fan Wang, and Leonidas Guibas. *Functional Map Networks for Analyzing and Browsing Large Shape Collections*. ACM Transactions on Graphics 33(4), Proc. SIGGRAPH 2014.
8. Hao Su, **Qixing Huang**, Niloy Mitra, Yangyan Li, and Leonidas Guibas. *Estimating Image Depth using Shape Collections*. ACM Transactions on Graphics 33(4), Proc. SIGGRAPH 2014.
9. Art Tevs, **Qixing Huang**, Michael Wand, Hans-Peter Seidel, and Leonidas Guibas. *Relating Shapes via Geometric Symmetries and Regularities*. ACM Transactions on Graphics 33(4), Proc. SIGGRAPH 2014.
10. **Qixing Huang**, Leonidas Guibas, and Niloy Mitra. *Near-Regular Structure Extraction Using Linear Programming*. ACM Transactions on Graphics 33(2) (Presented at SIGGRAPH 2014).
11. **Qixing Huang**, Hao Su, and Leonidas Guibas. *Fine-Grained Semi-Supervised Labeling of Large Shape Collections*. ACM Transactions on Graphics 32(6), Proc. SIGGRAPH ASIA 2013.
12. **Qixing Huang**, Guoxin Zhang, Lin Gao, Shimin Hu, Adrian Bustcher, and Leonidas Guibas. *An Optimization Approach for Extracting and Encoding Consistent Maps in a Shape Collection*. ACM Transactions on Graphics 31(6), Article 125, (2012), Proc. SIGGRAPH ASIA 2012.
13. **Qixing Huang**, Vladlen Koltun, and Leonidas Guibas. *Joint-Shape Segmentation with Linear Programming*. ACM Transactions on Graphics 30(6), Article 125, (2011), Proc. SIGGRAPH ASIA 2011.
14. Helmut Pottmann, **Qixing Huang**, Bailin Deng, Alexander Schiftner, Martin Kilian, Leonidas Guibas, and Johannes Wallner. *Geodesic patterns*. ACM Transactions on Graphics 29(4), Article 43, (2010), Proc. SIGGRAPH 2010.
15. **Qixing Huang**, Simon Flöry, Natasha Gelfand, Michael Hofer, and Helmut Pottmann. *Re-assembling Fractured Objects by Geometric Matching*. ACM Transactions on Graphics 25(3), 569-578, (2006), Proc. SIGGRAPH 2006.

Publications in Other Journals and Conferences

16. Yanyao Shen, **Qixing Huang**, Nathan Srebro, Sujay Sanghavi. *Normalized Spectral Permutation Synchronization*. NIPS' 16.

17. Ruizhe Wang, Lingyu Wei, Etienne Vouga, **Qixing Huang**, Duygu Ceylan, Gerard Medioni, and Hao Li. Capturing Dynamic Textured Surfaces of Moving Targets. ECCV' 16.
18. Chen Chen, Cewu Lu, **Qixing Huang**, Qiang Yang, Dimitrios Gunopulos, and Leonidas Guibas. City-Scale Map Creation and Updating using GPS Collections. Proc. of the 22st ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD), 2016.
19. Somaye Hashemifar, **Qixing Huang**, and Jinbo Xu. *Joint Alignment of Multiple Protein-Protein Interaction Networks via Convex Optimization*, RECOMB' 2016.
20. Linyu Wei, **Qixing Huang**, Duygu Ceylan, Etienne Vouga, and Hao Li. *Dense Human Body Correspondences Using Convolutional Networks*. CVPR' 2016 (**oral presentation**).
21. Tinghui Zhou, Philipp Krähenbühl, Mathieu Aubry, **Qixing Huang**, and Alexei Efros. *Learning Dense Correspondences via 3D-guided Cycle Consistency*. CVPR' 2016 (textbforal presentation).
22. **Qixing Huang**, Yuxin Chen, and Leonidas Guibas, *Scalable Semidefinite Programming Relaxation for MAP Estimation*, ICML' 2014.
23. Yuxin Chen, Leonidas Guibas, and **Qixing Huang**. *Near-optimal joint object matching via convex relaxation*, ICML' 2014.
24. Fan Wang, **Qixing Huang**, Maks Ovsjanikov, and Leonidas Guibas. *Joint Unsupervised Multi-Class Image Segmentation*, CVPR' 2014.
25. **Qixing Huang** and Leonidas Guibas. *Consistent Shape Maps via Semidefinite Programming*, Computer Graphics Forum 32(5), Proc. Symposium on Geometry Processing (SGP), 2013. **Best Paper Award**.
26. Fan Wang, **Qixing Huang**, and Leonidas Guibas. *Image Co-Segmentation via Consistent Functional Maps*. ICCV' 2013.
27. Yang Li, **Qixing Huang**, Michael Kerber, Lin Zhang, and Leonidas Guibas. *Large-Scale Joint Map Matching of GPS Traces*, In Proceedings of the 21th SIGSPATIAL International Conference on Advances in Geographic Information Systems, GIS 13, 2013.
28. Chen Chen, Hao Su, **Qixing Huang**, Lin Zhang, and Leonidas Guibas. *Pathlet Learning for Compressing and Planning Trajectories*. In Proceedings of the 21th SIGSPATIAL International Conference on Advances in Geographic Information Systems, GIS 13, 2013.
29. Haochen Tang, Michael Kerber, **Qixing Huang**, and Leonidas Guibas. *Locating Lucrative Passengers for Taxicab Drivers*. In Proceedings of the 21th SIGSPATIAL International Conference on Advances in Geographic Information Systems, GIS 13, 2013.
30. Bing Zhu, **Qixing Huang**, Leonidas Guibas, and Lin Zhang. *Urban Population Migration Pattern Mining Based on Taxi Trajectories*. Third International Workshop on Mobile Sensing: The future, brought to you by Big Sensor Data, IPSN'13 Workshop.
31. Youngmin Kim, Niloy Mitra, **Qixing Huang**, and Leonidas Guibas. *Guided Real-Time Scanning of Indoor Environments*. Computer Graphics Forum 32(7), Proc. Pacific Graphics 2013 .
32. Yongliang Yang and **Qixing Huang**. *TrayGen: Arranging Objects for Exhibition and Packaging*. Computer Graphics Forum 32(7), Proc. Pacific Graphics 2013.

33. Lin Gao, Yukun Lai, **Qixing Huang**, and Shimin Hu. *A Data-Driven Approach to Realistic Shape Morphing*. Computer Graphics Forum 32(2), Proc. Eurographics 2013 .
34. Maks Ovsjanikov, **Qixing Huang**, and Leonidas Guibas. *A Condition Number for Non-Rigid Shape Matching*. Computer Graphics Forum 30(5), Proc. Symposium on Geometry Processing (SGP) 2011.
35. **Qixing Huang**, Mei Han, Bo Wu, and Sergey Ioffe. *A Hierarchical Conditional Random Field Model for Labeling and Segmenting Images of Street Scenes*. CVPR'2011.
36. Johannes Wallner, Alexander Schiftner, Martin Kilian, Simon Flöry, Mathias Höbinger, Bailin Deng, **Qixing Huang**, and Helmut Pottmann. *Tiling freeform shapes with straight panels: Algorithmic methods*. Advances in Architectural Geometry, 2010.
37. **Qixing Huang** and Dragomir Anguelov. *High Quality Pose Estimation by Aligning Multiple Scans to a Latent Map*. IEEE International Conference on Robotics and Automation, ICRA' 2010.
38. **Qixing Huang**, Radomir. Měch, and Nathan Carr. *Optimizing Structure Preserving Embedded Deformation for Resizing Images and Vector Art*. Computer Graphics Forum 28(7), Proc. Pacific Graphics 2009.
39. Barbara Thuswaldner, Simon Flöry, Robert Kalasek, Michael Hofer, **Qixing Huang**, and Hilke Thür. *Digital anastylosis of the Octagon in Ephesos*. ACM Journal on Computing and Cultural Heritage (JOCCH) 2(1), 2009.
40. **Qixing Huang**, Martin Wicke, Bart Adams, and Leonidas Guibas. *Shape Decomposition using Modal Analysis*. Computer Graphics Forum 28(2), Proc. Eurographics 2009.
41. Helmut Pottmann, Johannes Wallner, **Qixing Huang**, and Yongliang Yang. *Integral Invariants for Robust Geometry Processing*. Computer Aided Geometric Design 26(1), 2009.
42. **Qixing Huang**, Bart Adams, Martin Wiche, and Leonidas Guibas. *Non-Rigid Registration Under Isometric Deformations*. Computer Graphics Forum 27(5), Proc. of Symposium on Geometry Processing (SGP) 2008.
43. **Qixing Huang**, Bart Adams, and Michael Wand. *Bayesian Surface Reconstruction via Iterative Scan Alignment to an Optimized Prototype*. Proc. of Eurographics Symposium on Geometry Processing 2007 (SGP).
44. Michael Wand, Phillip Jenke, **Qixing Huang**, Martin Bokeloh, Leonidas Guibas, and Andrea Schilling. *Reconstruction of Deforming Geometry from Time-Varying Point Clouds*. Proc. of Eurographics Symposium on Geometry Processing 2007 (SGP).
45. Helmut Pottmann, **Qixing Huang**, Yongliang Yang, and Shimin Hu. *Geometry and Convergence Analysis of Algorithms for Registration of 3D Shapes*. International Journal of Computer Vision 67(3), 2006.
46. **Qixing Huang**, Shimin Hu, and Ralph Martin. *Fast Degree Elevation and Knot Insertion for B-spline Curves*. Computer Aided Geometric Design 22(2), 2005.
47. Chiewlan Tai, Shimin Hu, and **Qixing Huang**. *Approximate Merging of B- Spline Curves via Knot Adjustment and Constrained Optimization*. Computer Aided Design 35(10), 2003.

48. Qixing Huang. *Optimization Techniques for Segmenting 3D Shapes*, PHD Dissertation, Stanford University, 2012.
49. Qixing Huang. *Automatic and Robust Multi-view Matching*, MS Thesis, Tsinghua University, 2005.
50. Qixing Huang. *Interactive Editing of Subdivision Surfaces*, BS Thesis, Tsinghua University, 2002.

Patents

51. Dragomir Anguelov and **Qixing Huang**. *Accurate Alignment of Multiple Laser Scans Using a Template Surface*. US Patent 8209144.
52. **Qixing Huang**, Nathan Carr, and Radomir Mech. *Method and Apparatus for Structure Preserving Editing in Computer Graphics*. US Patent 8229247.

Professional Activity

Student Supervision:

Hai Wang, master student at *TTI Chicago*, 10/2014-01/2015.

Zimo Li, master student at *University of Chicago*, 03/2015–current.

Guilin Liu, visiting student from *George Mason University*, 06/2015–08/2015.

Somaye Hashemifar, Phd student at *TTI Chicago*, 04/2005-current, co-supervision with Prof. Jinbo Xu.

Yuanfeng WangYang, visiting student from *University College London*, 11/2015–02/2016.

Program Committee:

Eurographics 2014, 2015 (Short Papers);

Geometry Modeling and Processing 2014, 2015, 2016;

ACM Symposium on Solid and Physical Modeling 2012, 2013;

Eurographics Symposium on Geometry Processing 2012, 2014, 2015, 2016;

Shape Modeling International 2016;

Pacific Graphics 2012, 2014, 2015;

CAD/Graphics 2015;

Journal Reviewer:

ACM Transactions on Graphics;

IEEE Transactions on Visualization and Computer Graphics;

IEEE Transactions on Pattern Analysis and Machine Intelligence;

International Journal of Computer Vision;
IEEE Transactions on Image Processing;
IEEE Computer Graphics and Application;
Computer Vision and Image Understanding;
ACM Journal on Cultural Heritage and Computing;
Robotics and Autonomous Systems;
The Visual Computer;
Computer Aided Design;
Computer Aided Geometric Design;
Computer Graphics Forum;
SIAM Journal on Imaging Sciences;
Graphical Models;
Journal of Machine Learning Research;

Conference Reviewer:

SIGGRAPH 2007, 2011, 2012, 2013, 2014, 2015;
SIGGRAPH Asia 2010, 2012, 2013, 2014, 2015;
Eurographics 2009, 2010, 2011, 2012, 2013, 2014, 2015;
Symposium on Geometry Processing 2005, 2006, 2008, 2012, 2014, 2015;
ICML 2014, 2015;
AAAI 2015;
ICCV 2015;
CVPR 2016;
ACCV 2014;
Pacific Graphics 2002, 2005, 2012, 2013, 2014, 2015;

Invited Talks:

Visual Computing Using Big 3D Data

- Computer Science Colloquium, University of Texas Austin, USA, 3/2016.
- Computer Science Colloquium, Purdue University, USA, 3/2016.
- Computer Science Colloquium, University of California, Riverside, USA, 3/2016.
- Computer Science Colloquium, Washington University at Saint Louis, USA, 3/2016.
- Computer Science Colloquium, University of Southern California, USA, 4/2016.
- Computer Science Colloquium, University of Toronto, USA, 4/2016.
- Computer Science Colloquium, Michigan State University, USA, 4/2016.

Robust Map Synchronization via Constrained Matrix Optimization

- ICES Colloquium, University of Texas Austin, USA, 10/2015.

Single-View Construction via Joint Analysis of Image and Shape Collections

- Computer Science Department Colloquium, University of Texas Austin, USA, 10/2015.
- Visual Computing Lab Seminar, University of California, Berkeley, USA, 08/2015.
- CVPR Workshop on 3D from a Single Image, USA, 06/2015.
- Computer Science Department Colloquium, Washington University in St. Louis, USA, 04/2015.
- Research at TTIC seminar, Toyota Technological Institute at Chicago, USA, 01/2015.

Geometry Processing from a Data-Driven Perspective

- Computer Science Department Colloquium, University of Waterloo, Canada, 04/2014.
- Computer Science Department Colloquium, King Abdullah University of Science and Technology, Saudi Arabia, 03/2014.
- Invited Talk, Adobe Research, San Jose, USA, 03/2014.
- TTI Chicago Colloquium, Toyota Technological Institute at Chicago, USA, 02/2014.
- Computer Science Department Colloquium, Arizona State University, USA, 02/2014.

Robust Joint Object Matching Using Semidefinite Programming

- Visual Computing Center International Workshop, Chinese Academy of Sciences, Shenzhen, China, 11/2013.
- Graphics/Vision Seminar, Princeton University, USA, 09/2013.
- Computer Science Department Colloquium, Ecole Polytechnique, France, 07/2013.

Joint Shape Segmentation Using Linear Programming

- CS Faculty Lunch Seminar, Stanford University, USA, 12/2011.
- Visual Computing Seminar, Chinese Academy of Sciences, Shenzhen, China, 11/2011.

Shape Matching Using Linear Programming

- Workshop on Recent Advances on Topological and Geometric Data Analysis, Paris, France, 07/2009.

Shape Decomposition Using Modal Analysis

- Surfaces, Meshes, Geometric Structures, International Workshop in Admont, 07/2009.

Teaching activity

Instructor

- 2014 Spring Data-Driven Geometry Processing, CS468, Stanford University.
- 2013 November Structure-Aware Shape Processing, SIGGRAPH ASIA 2013 Course, with Niloy Mitra, Michael Wand, Hao Zhang, Daniel Cohen-or and Vladimir Kim.
- 2014 August Structure-Aware Shape Processing, SIGGRAPH 2014 Course, with Niloy Mitra, Michael Wand, Hao Zhang, Daniel Cohen-or and Vladimir Kim.

Guest Lecturer

- 2012 Summer Introduction to Computer Graphics, CS148, Stanford University.
- 2012 Spring Digital Geometry Processing, CS468 , Stanford University.

Teaching Assistant

- 2009 Fall Computer Graphics: Geometric Modeling, CS348A, Stanford University.
- 2009 Spring Computing with Physical Objects: Algorithms for Shape and Motion, CS164, Stanford University.
- 2008 Spring Computer Graphics: Geometric Modeling, CS348A, Stanford University.