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Xifeng Gao

Current Occupation

Aug./18–current **Assistant Professor, Department of Computer Science, Florida State University**

⋆ Arts and Sciences Dean's Faculty Travel Award.

Education

Aug./16–Jul./18 **Postdoctoral Associate, Courant Institute of Mathematical Sciences, New York University**

⋆ Host: Prof. Daniele Panozzo.
⋆ Research topic: Mesh Generation and Simulation.

Sep./11–May/16 **Ph.D., Department of Computer Science, University of Houston**

⋆ Best PhD Thesis Award (2016), Best PhD Student Award (2015), Best Junior PhD Student Award (2013).

Sep./08–Jun./11 **M.Sc., Department of Computer Science and Technology, Shandong University**

⋆ Outstanding Student Scholarship (2010), Research Innovation Scholarship (2008).
⋆ National Graduate Contest in Mathematical Modeling, First Place (2008).

Sep./04–Jun./08 **B.Sc., Department of Computer Science and Technology, Shandong University**

⋆ Outstanding Student Scholarship (2007, 2006, 2005).
⋆ GPA: 88.38/100, top 5 (182 in total).

Teaching

Spring 2020 **Lecturer, Computer Science Department, Florida State University**

⋆ Course: Computer Graphics (Undergrads and grads combined.)

Fall 2019 **Lecturer, Computer Science Department, Florida State University**

⋆ Course: Python Programming (undergrads)

Spring 2019 **Lecturer, Computer Science Department, Florida State University**

⋆ Course: Computer Graphics (undergrads)

Fall 2018 **Lecturer, Computer Science Department, Florida State University**

⋆ Course: Computer Graphics (grads)

May/03/2017 **Guest Lecturer, New York University**

⋆ Course: Geometry Processing (grads)

Sep./11–Jun./15 **Teaching Assistant, University of Houston**

⋆ Courses: 1) *Topics in Computer Science-Medical Imaging*, 2) *Topics in Computer Science-Cyber Physical Systems*, 3) *Computer Architecture*, 4) *Introduction to Automata and Computability*, 5) *Computer Graphics*, and 6) *Intro Computer Science II (C++, JAVA)*

Sep./09–Jun./11 **Teaching Assistant, Shandong University**

⋆ Course: Computer Graphics

Research

Geometry Computing and Optimization for applications in Computer Graphics, Digital Fabrication, Medical Image Analysis, Robotics, and Computer-aided Engineering Analysis.

Publications

- Zherong Pan, **Xifeng Gao**, Dinesh Monocha. "Grasping Fragile Objects Using A Stress-Minimization Metric", *IEEE International Conference on Robotics and Automation (ICRA)*, 2020, Accepted.
- Jun Wu, Weiming Wang, **Xifeng Gao**. "Design and Optimization of Conforming Lattice Structures", *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, 2019, 15 pages.
- Yue Liu, Pengbo Bo, Xuemei Li, **Xifeng Gao**. "Sketch simplification guided by complex agglomeration", *SCIENCE CHINA Information Sciences*, 2019. 16 pages.
- Zherong Pan, Min Liu, **Xifeng Gao**, Dinesh Monocha. "Globally Optimal Joint Search of Topology and Trajectory for Planar Linkages", *The International Symposium on Robotics Research (ISRR 2019)*, 16 pages.
- **Xifeng Gao**, Hanxiao Shen, Daniele Panozzo. "Feature Preserving Hexahedral Meshing", *Computer Graphics Forum* (SGP 2019), 14 pages.
- Yixin Hu, Teseo Schneider, **Xifeng Gao**, Qingnan Zhou, Alec Jacobson, Denis Zorin, Daniele Panozzo. "TriWild: Robust Triangulation with Curve Constraints", *ACM Transactions on Graphics* (SIGGRAPH 2019), 15 pages.
- Teseo Schneider, Jeremie Dumas, **Xifeng Gao**, Mario Botsch, Denis Zorin, Daniele Panozzo. "Poly-Spline Finite Element Method", *ACM Transactions on Graphics (TOG)*, 2019, 16 pages.
- Teseo Schneider, Yixin Hu, Jeremie Dumas, **Xifeng Gao**, Daniele Panozzo, Denis Zorin. "Decoupling Simulation Accuracy from Mesh Quality", *ACM Transactions on Graphics* (SIGGRAPH ASIA 2018), 14 pages.
- Yixin Hu, Qingnan Zhou, **Xifeng Gao**, Alec Jacobson, Denis Zorin, Daniele Panozzo. "Tetrahedral Meshing in the Wild", *ACM Transactions on Graphics* (SIGGRAPH 2018), 14 pages.
- Kui Wu, **Xifeng Gao**, Zachary Ferguson, Daniele Panozzo, Cem Yuksel. "Stitch Meshing", *ACM Transactions on Graphics* (SIGGRAPH 2018), 12 pages.
- **Xifeng Gao**, Daniele Panozzo, Wenping Wang, Zhigang Deng, Guoning Chen. "Robust Structure Simplification for Hex Re-meshing", *ACM Transactions on Graphics* (SIGGRAPH ASIA 2017), 36, 6, pages 185:1–185:13, Article 185 (Nov. 2017), 13 pages.
- **Xifeng Gao**, Jin Huang, Kaoji Xu, Zherong Pan, Zhigang Deng, Guoning Chen. "Evaluating Hex-mesh Quality Metrics via Correlation Analysis", *Computer Graphics Forum* 36, 5, (SGP 2017), 12 pages.
- Kaoji Xu, **Xifeng Gao**, Guoning Chen. "Hexahedral Mesh Quality Improvement via Edge-angle Optimization", *Computer & Graphics (CAD/Graphics 2017)*, 12 pages.
- **Xifeng Gao**, Marco Tarini, Wenzel Jacob, Daniele Panozzo. "Robust Hex-Dominant Mesh Generation using Field-Guided Polyhedral Agglomeration", *ACM Transactions on Graphics* (SIGGRAPH 2017), 36, 4, Article 114 (July 2017), 13 pages.
- Kaoji Xu, **Xifeng Gao**, Zhigang Deng, and Guoning Chen. "Hexahedral Meshing with Varying Element Sizes", *Computer Graphics Forum*, (April 2017), 13 pages.
- Yongxia Zhang, Xuemei Li, **Xifeng Gao**, and Caiming Zhang. "A Simple Algorithm of Superpixel Segmentation with Boundary Constraint", *IEEE Transactions on Circuits and Systems for Video Technology*, 27, 7, pages 1502–1514 (July 2017), 13 pages.
- Wenqian Deng, Xuemei Li, **Xifeng Gao**, and Caiming Zhang. "A Modified Fuzzy C-means Algorithm for Brain MR Image Segmentation and Bias Field Correction", *Journal of Computer Science and Technology*,31, 3, pages 501–511, (May 2016), 11 pages.
- **Xifeng Gao**, Tobias Martin, Sai Deng, Elaine Cohen, Zhigang Deng and Guoning Chen. "Structured Volume Decomposition via Generalized Sweeping", *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, 22, 7, pages 1899–1911, (July 2016), 13 pages.
- **Xifeng Gao**, and Guoning Chen. "A Local Frame based Hexahedral Mesh Optimization", *25th International Meshing Roundtable, research note*, September, 2016, 5 pages.
- **Xifeng Gao**, Zhigang Deng and Guoning Chen. "Hexahedral Mesh Re-parameterization from Aligned Base Domains", *ACM Transactions on Graphics* (*ACM SIGGRAPH 2015*), 34, 4, pages 142:1–142:10, (August 2015), 10 pages.

- **Xifeng Gao**, Jin Huang, Siwang Li, Zhigang Deng, Guoning Chen. "An Evaluation of The Quality of Hexahedral Meshes via Modal Analysis", *The First International Workshop on Hex-Meshing: Theory, Applications, and Evaluation*, July, 2014, 6 pages.
- **Xifeng Gao**, Caiming Zhang, Yan Huang, and Zhigang Deng. "A Robust High Capacity Affine-Transformation-Invariant Scheme for Watermarking 3D Geometric Models", *ACM Transactions on Multimedia Computing, Communications and Applications (TOMCCAP)*, 8, 34:1–43:21, (September 2012), 21 pages.
- **Xifeng Gao**, Nikhil V. Navkar, Nikolaos V. Tsekos and Zhigang Deng. "Intraoperative Registration of Preoperative 4D Cardiac Anatomy with Real-time MR Images", *IEEE 12th International Conference on BioInformatics and BioEngineering (BIBE'12)*, pp. 583-588, September, 2012, 5 pages.
- **Xifeng Gao**, Caiming Zhang, Yan Huang, Xia Hu, and Anping Zhu. "Similarity-Transformation Invariant Reversible Watermarking Method for 3D Models", *the Springer Lecture Notes on Electrical Engineering*, 62, pages 277-282, (August 2010), 6 pages.
- **Xifeng Gao**, Caiming Zhang, Yu Wei, and Weitao Li. "A Highly Adaptable Capacity and Invisibility 3D Watermarking Based on Four-Points Sets", *The 12th ACM Multimedia and Security Workshop (MM&Sec'10)*, pp. 137-146, 2010, 10 pages.
- Anping Zhu, Caiming Zhang, Xingqiang Yang, and **Xifeng Gao**. "Reversible Watermarking of 3D Mesh Models Using Prediction-error Expansion", *The 3rd International Congress on Image and Signal Processing (CISP'10)*, vol. 3, pp. 1171-1175, 2010, 5 pages.
- Huamin Ji, Caiming Zhang, Xingqiang Yang, and **Xifeng Gao**. "Watermarking Three-Dimensional Polygonal Models", *The 3rd International Congress on Image and Signal Processing (CISP'10)*, vol. 8, pp. 3899-3903, 2010, 5 pages.
- Xia Hu, Caiming Zhang, Wei Wang, and **Xifeng Gao**, "Disparity Adjustment for Local Stereo Matching", *International Symposium on Frontier of Computer Science, Engineering and Applications (CSEA'10)*, pp. 1388-1392, 2010, 5 pages.

Patent

- "A Similarity-Transformation Invariant Reversible Watermarking Method and Equipment for 3D Models", June 11, 2014, No. CN102339456 B (in Chinese).

Funding

- "Robust High Order Meshing and Analysis for Design Pipeline Automation", PI: Xifeng Gao. $\$260,722$. NSF IIS-1910486, 2019 - 2022.
- "Robust Hexahedral Meshing for Black-box PDE Solving", PI: Xifeng Gao. $\$20,000$ for Summer 2019. First Year Assistant Professor Award, Florida State University.

Academic Services

Associate Editor	The Visual Computer Journal, 2018 -
International Program Committee Member	Symposium on Geometry Processing (SGP), 2018, 2019 Geometry Modeling and Processing (GMP), 2019, 2020 Reproducibility Stamp, 2017-2019 Eurographics, 2020 Computer Graphics International (CGI), 2019 Computational Visual Media Conference (CVM), 2019 Shape Modeling International (SMI), 2018, 2019, 2020 International Symposium on Visual Computing (ISVC), 2019, 2020 Computer-Aided Design/Graphics, 2019 Conference on Graphics, Patterns and Images (SIBGRAPI), 2017, 2019

Pacific Graphics (PG), 2018

International Conference on Virtual Reality and Visualization (ICVRV), 2017

Reviewer NSF Panelist/reviewer, 2020
Served as a reviewer for more than 50 manuscripts every year from the major conferences and Journals in computer graphics, medical imaging, computer vision, and mechanics.

Invited Talks

Aug./12/2019 3D Printing 2019, Dartmouth Colledge
Design and Optimization of Conforming Lattice Structures.

Mar./28/2019 Online Live Streaming: Graphics And Mixed Environment Seminar (GAMES)
Decoupling Simulation Accuracy from Mesh Quality.

Jul./12/2018 Peiking University of Technology, Beijing, China,
Tetrahedralization in the Wild.

Jul./11/2018 Shandong University, Qingdao, China,
Tetrahedralization in the Wild.

Jul./06/2018 Geometric Design Colloquim, Hefei, China,
Stitch Meshing.

Jul./05/2018 University of Science and Technology of China, Hefei, China,
Robust Mesh Generation and Applications to Geometry Processing.

Apri./03/2018 Peking University, Beijing, China,
Robust Meshing.

Feb./20/2018 Florida state University, Tallahassee, US,
Robust Volumetric Meshing.

Feb./15/2018 University of Montreal, Montreal, Canada,
Robust Volumetric Meshing.

Nov./28/2017 SIGGRAPH ASIA, Bangkok, Thailand,
Robust Structure Simplification for Hex Re-meshing.

Nov./25/2017 Shandong University, Jinan, China,
Robust Structure Simplification for Hex Re-meshing.

Nov./24/2017 Peking University, Beijing, China,
Robust Hexahedral and Hex-dominant Meshing.

Nov./23/2017 Microsoft Asia Research, Beijing, China,
Robust Structure Simplification for Hex Re-meshing.

Aug./24/2017 Brigham Young University, Provo, US,
Robust Hexahedral and Hex-dominant Meshing.

Aug./22/2017 University of Utah, Salt Lake City, US,
Robust Hexahedral and Hex-dominant Meshing.

Aug./02/2017 SIGGRAPH, Los Angeles, US,
Robust Hex-Dominant Mesh Generation using Field-Guided Polyhedral Agglomeration.

July/11/2017 SIAM/GD, Pittsburgh, US,
Robust Hex-Dominant Mesh Generation using Field-Guided Polyhedral Agglomeration.

Mar./08/2016 New York University, New York, US,
Towards High Quality Hex-meshing: Generation, Optimization, and Evaluation.

Aug./13/2015 SIGGRAPH, Los Angeles, US,
Hexahedral Mesh Re-parameterization from Aligned Base-Complex.

July/09/2015 Shandong University, China,
Generation and Optimization of Hexahedral Meshes.

Apr./15/2014 Computer Animation and Social Agents (CASA), Houston, US,
An Evaluation of The Quality of Hexahedral Meshes via Modal Analysis.