

JUYONG ZHANG

CONTACT INFORMATION

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RESEARCH INTERESTS

My research interests fall into the areas of computer graphics and computer vision. More specifically, I am working on or has worked on the following research topics:

- Computer Graphics: 3D Surface Reconstruction, Digital Geometry Processing, Point Cloud Processing
- Computer Vision: 3D Face Reconstruction from Image/Video/RGB-D Datas, Face Alignment/Recognition

EDUCATION

Doctor of Philosophy, Aug 2007 ~ Mar 2011
School of Computer Engineering
Nanyang Technological University (NTU, Singapore)

- Dissertation: *Variational 3D Mesh Segmentation*
- Adviser: Jianfei Cai and Jianmin Zheng

Bachelor of Engineering, Sep 2002 ~ Jul 2006
School of Computer Science and Technology
University of Science and Technology of China (USTC)

ACADEMIC EXPERIENCE

Professor, Jan 2022 ~ present
School of Mathematical Sciences
University of Science and Technology of China (USTC)

Associate Professor, Aug 2012 ~ Dec 2021
School of Mathematical Sciences
University of Science and Technology of China (USTC)

Research Fellow, Apr 2012 ~ Aug 2012
[Institute for Media Innovation](#)
Nanyang Technological University (NTU, Singapore)

Postdoctoral Researcher, Mar 2011 ~ Feb 2012
[Computer Graphics and Geometry Laboratory](#)
Swiss Federal Institute of Technology in Lausanne (EPFL)

Visiting Student, Jun 2010 ~ Jul 2010
GAMBIT Lab
Massachusetts Institute of Technology (MIT)

SELECTED PUBLICATIONS

1. **Juyong Zhang**, Yuxin Yao, Bailin Deng. Fast and Robust Iterative Closest Point. *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, In Press, 2021.
2. Jiong Tao, **Juyong Zhang***, Bailin Deng, Zheng Fang, Yue Peng. Parallel and Scalable Heat Methods for Geodesic Distance Computation. *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, Vol.43, No.2, 2021.
3. Luo Jiang, **Juyong Zhang***, Bailin Deng. Robust RGB-D Face Recognition Using Attribute-Aware Loss. *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, Vol.42, No.10, 2020.
4. Yudong Guo, **Juyong Zhang***, Jianfei Cai, Boyi Jiang, Jianmin Zheng. CNN-based Real-time Dense Face Reconstruction with Inverse-rendered Photo-realistic Face Images. *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, Vol.41, No.6, 2019.
5. Di Xu, Qi Duan, Jianmin Zheng, **Juyong Zhang**, Jianfei Cai, Tat-Jen Cham. Shading-based Surface Detail Recovery under General Unknown Illumination. *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, Vol.40, No.2, 2018.
6. **Juyong Zhang***, Yue Peng, Wenqing Ouyang, Bailin Deng. Accelerating ADMM for Efficient Simulation and Optimization. *ACM Trans on Graphics (Proc. SIGGRAPH Asia)*, Vol.38, No.6, 2019.
7. Yue Peng, Bailin Deng, **Juyong Zhang***, Fanyu Geng, Wenjie Qin, Ligang Liu. Anderson Acceleration for Geometry Optimization and Physics Simulation. *ACM Trans on Graphics (Proc. SIGGRAPH)*, Vol.37, No.4, 2018.
8. Yijiang Huang, **Juyong Zhang***, Xin Hu, Guoxian Song, Zhongyuan Liu, Lei Yu, Ligang Liu. FrameFab: Robotic Fabrication of Frame Shapes. *ACM Trans on Graphics (Proc. SIGGRAPH Asia)*, Vol.35, No.6, 2016.
9. **Juyong Zhang**, Bailin Deng, Zishun Liu, Giuseppe Patanè, Sofien Bouaziz, Kai Hormann, Ligang Liu. Local Barycentric Coordinates. *ACM Trans on Graphics (Proc. SIGGRAPH Asia)*, Vol.33, No.6, 2014.
10. Shiyao Xiong, **Juyong Zhang***, Jianmin Zheng, Jianfei Cai, Ligang Liu. Robust Surface Reconstruction via Dictionary Learning. *ACM Trans on Graphics (Proc. SIGGRAPH Asia)*, Vol.33, No.6, 2014.

11. **Juyong Zhang**, Jianmin Zheng, Chunlin Wu, Jianfei Cai. Variational Mesh Decomposition. ACM Trans on Graphics (**TOG**), Vol.31, No.3, 2012.
12. Qianwei Xia, **Juyong Zhang***, Zheng Fang, Jin Li, Mingyue Zhang, Bailin Deng, Ying He. GeodesicEmbedding (GE): A High-Dimensional Embedding Approach for Fast Geodesic Distance Queries. IEEE Transactions on Visualization and Computer Graphics, (**TVCG**) In Press, 2021.
13. Wanquan Feng, **Juyong Zhang***, Yuanfeng Zhou, Shiqing Xin. GDR-Net: A Geometric Detail Recovering Network for 3D Scanned Objects. IEEE Transactions on Visualization and Computer Graphics, (**TVCG**) In Press, 2021.
14. Boyi Jiang, **Juyong Zhang***, Jianfei Cai, Jianmin Zheng. Disentangled Human Body Embedding Based on Deep Hierarchical Neural Network. IEEE Transactions on Visualization and Computer Graphics (**TVCG**), In Press, 2020.
15. **Juyong Zhang**, Keyu Chen, Jianmin Zheng. Facial Expression Retargeting from Human to Avatar Made Easy. IEEE Transactions on Visualization and Computer Graphics (**TVCG**), In Press, 2020.
16. **Juyong Zhang**, Bailin Deng, Yang Hong, Yue Peng, Wenjie Qin, Ligang Liu. Static/Dynamic Filtering for Mesh Geometry. IEEE Transactions on Visualization and Computer Graphics (**TVCG**), Vol.25, No.4, pages 1774-1787, 2019.
17. Huayan Zhang, Chunlin Wu, **Juyong Zhang**, Jiansong Deng. Variational Mesh Denoising using Total Variation and Piecewise Constant Function Space. IEEE Trans On Visualization and Computer Graphics (**TVCG**), Vol.21, No.7, Page.873-886, 2015.
18. **Juyong Zhang**, Jianmin Zheng, Jianfei Cai. Interactive Mesh Cutting Using Constrained Random Walks. IEEE Trans On Visualization and Computer Graphics (**TVCG**), Vol.17, No.3, Page.357-367, 2011.
19. Yudong Guo, Lin Cai, **Juyong Zhang***. 3D Face From X: Learning Face Shape from Diverse Sources. IEEE Transactions on Image Processing, (**TIP**) Vol.30, pages 3815-3827, 2021.
20. Luo Jiang, **Juyong Zhang***, Bailin Deng, Hao Li, Ligang Liu. 3D Face Reconstruction with Geometry Details from a Single Image. IEEE Transactions on Image Processing (**TIP**), Vol.27, No.10, 2018.
21. Thi Nhat Anh Nguyen, Jianfei Cai, **Juyong Zhang**, Jianmin Zheng. Robust Interactive Image Segmentation Using Convex Active Contours. IEEE Trans on Image Processing (**TIP**). Vol.21, 2012.
22. Xueying Wang, Yudong Guo, Zhongqi Yang, **Juyong Zhang***. Prior-Guided Multi-View 3D Head Reconstruction. IEEE Transactions on Multimedia (**TMM**), In Press, 2021.

23. Changwei Luo, **Juyong Zhang**, Jun Yu, Chang Wen Chen, Shengjin Wang. Real-time Head Pose Estimation and Face Modeling From a Depth Image. *IEEE Transactions on Multimedia (TMM)*, 2019.
24. Wenqing Ouyang, Yue Peng, Yuxin Yao, **Juyong Zhang***, Bailin Deng. Anderson Acceleration for Nonconvex ADMM Based on Douglas-Rachford Splitting. *Computer Graphics Forum (Symposium on Geometry Processing)*, 39(5), 2020.
25. Wangyu Zhang, Bailin Deng, **Juyong Zhang***, Sofien Bouaziz, Ligang Liu. Guided Mesh Normal Filtering. *Computer Graphics Forum (Pacific Graphics)*, Vol.34, No.7, Page.23-34, 2015.
26. Bailin Deng, Sofien Bouaziz, Mario Deuss, **Juyong Zhang**, Yuliy Schwartzburg, Mark Pauly. Exploring Local Modifications for Constrained Meshes. *Computer Graphics Forum ()*, Vol.32, No.2, Page.11-20, 2013.
27. **Juyong Zhang**, Chunlin Wu, Jianfei Cai, Jianmin Zheng, Xue-cheng Tai. Mesh Snapping: Robust Interactive Mesh Cutting Using Fast Geodesic Curvature Flow. *Computer Graphics Forum (Eurographics)*, Vol.29, No.2, Page.517-526, 2010.
28. Zishun Liu, **Juyong Zhang***, Ligang Liu. Upright Orientation of 3D Shapes with Convolutional Networks. *Graphical Models*, Vol.85, Page.22-29, 2016.
29. Jiong Tao, Bailin Deng, **Juyong Zhang***. A Fast Numerical Solver for Local Barycentric Coordinates. *Computer Aided Geometric Design (GMP)*, Vol.70, Page.46-58, 2019.
30. Qian Fu, Ying He, Fei Hou, **Juyong Zhang**, Anxiang Zeng, Yong-Jin Liu. Vectorization Based Color Transfer for Portrait Images. *Computer-Aided Design*, Vol.115, pages.111-121, 2019.
31. Ghulam Mustafa, Hao Li, **Juyong Zhang***, Jiansong Deng. ℓ_1 -Regression Based Subdivision Schemes For Noisy Data. *Computer Aided Design (SPM)*, 2014.
32. Qiang Zou, **Juyong Zhang***, Bailin Deng, Jibin Zhao. Iso-level Tool Path Planning for Free-form Surfaces. *Computer Aided Design*, Vol.53, Page.117-125, 2014.
33. Wanquan Feng, **Juyong Zhang***, Hongrui Cai, Haofei Xu, Junhui Hou, Hujun Bao. Recurrent Multi-view Alignment Network for Unsupervised Surface Registration. **CVPR**, 2021.
34. Yang Hong, **Juyong Zhang***, Boyi Jiang, Yudong Guo, Ligang Liu, Hujun Bao. StereoPIFu: Depth Aware Clothed Human Digitization via Stereo Vision. **CVPR**, 2021.
35. Yuxin Yao, Bailin Deng, Weiwei Xu, **Juyong Zhang***. Quasi-Newton Solver for Robust Non-Rigid Registration. **CVPR**, 2020.

36. Xueying Wang, Yudong Guo, Bailin Deng, **Juyong Zhang***. Lightweight Photometric Stereo for Facial Details Recovery. **CVPR**, 2020.
37. Haofei Xu, **Juyong Zhang***. AANet: Adaptive Aggregation Network for Efficient Stereo Matching. **CVPR**, 2020.
38. Zi-Hang Jiang, Qianyi Wu, Keyu Chen, **Juyong Zhang***. Disentangled Representation Learning for 3D Face Shape. **CVPR**, 2019.
39. Qianyi Wu, **Juyong Zhang***, Yu-Kun Lai, Jianmin Zheng, Jianfei Cai. Alive Caricature from 2D to 3D. **CVPR** (Spotlight Presentation), **The Best of the Physics arXiv by MIT Tech**, 2018.
40. Di Xu, Qi Duan, Jianming Zheng, **Juyong Zhang***, Jianfei Cai, Tat-Jen Cham. Recovering Surface Details under General Unknown Illumination Using Shading and Coarse Multi-view Stereo. **CVPR**, 2014.
41. **Juyong Zhang**, Jianmin Zheng, Jianfei Cai. A Diffusion Approach to Seeded Image Segmentation. **CVPR**, 2010.
42. Yudong Guo, Keyu Chen, Sen Liang, Yong-Jin Liu, Hujun Bao, **Juyong Zhang***. AD-NeRF: Audio Driven Neural Radiance Fields for Talking Head Synthesis. **ICCV**, 2021.
43. Zhi Deng, Yuxin Yao, Bailin Deng, **Juyong Zhang***. A Robust Loss for Point Cloud Registration. **ICCV**, 2021.
44. Haofei Xu, Jiaolong Yang, Jianfei Cai, **Juyong Zhang**, Xin Tong. High-Resolution Optical Flow from 1D Attention and Correlation. **ICCV**, 2021.
45. Boyi Jiang, **Juyong Zhang***, Yang Hong, Jinhao Luo, Ligang Liu, Hujun Bao. BCNet: Learning Body and Cloth Shape from A Single Image. **ECCV**, 2020.
46. Keyu Chen, **Juyong Zhang***, Jianfei Cai, Jianmin Zheng. Modeling Caricature Expressions by 3D Blendshape and Dynamic Texture. **ACM Multimedia**, 2020.
47. Guoxian Song, Jianfei Cai, Tat-Jen Cham, Jianmin Zheng, **Juyong Zhang***, Henry Fuchs. Real-time 3D Face-Eye Performance Capture of a Person Wearing VR Headset. **ACM Multimedia**, 2018.
48. Haofei Xu, Jianmin Zheng, Jianfei Cai, **Juyong Zhang***. Region Deformer Networks for Unsupervised Depth Estimation from Unconstrained Monocular Videos. **IJCAI**, 2019.

RESEARCH PROJECTS

- Huawei Innovation Research Program, Principal Investigator, Real-time 3D Face Reconstruction and Animation Based on RGB Sensor, 03/2018-03/2019, CNY940,000k

- Natural Key R&D Program of China, No: 2016YFC0800501, Principal Investigator, The study of real-time 3D face reconstruction and recognition based on depth sensor, 07/2017-06/2019, CNY1500,000k
- Natural Science Foundation of China (NSFC), No: 61672481, Principal Investigator, The study of 3D human body reconstruction and tracking based on RGB-D camera, 01/2017-12/2020, CNY630,000k
- Natural Science Foundation of China (NSFC), No: 61303148, Principal Investigator, Application Research on Sparsity in Digital Geometry Processing, 01/2014-12/2016, CNY250,000k
- Natural Science Foundation of Anhui Province of China, No: 1408085QF119, Principal Investigator, Research of mesh denoising and segmentation based on sparse models, 07/2014-06/2016, CNY70,000k

TEACHING

- **Introduction to Algorithms**, Undergraduate Course
 - Sep 2016 ~ Jan 2017, Feb 2017 ~ Jun 2017, Feb 2018 ~ Jun 2018
- **Wavelet Analysis**, Undergraduate Course
 - Feb 2015 ~ Jun 2015
- **Numerical Optimization**, Postgraduate Course
 - Feb 2013 ~ Jun 2013, Feb 2014 ~ Jun 2014, Sep 2015 ~ Jan 2015
- **Digital Geometry Processing**, Postgraduate Course
 - Feb 2016 ~ Jun 2016
- **Digital Image Processing**, Postgraduate Course
 - Sep 2012 ~ Jan 2013, Sep 2013 ~ Jan 2014, Sep 2017 ~ Jan 2018

SERVICES

- Reviewer: Eurographics (2013, 2014, 2015, 2016), Siggraph Asia (2008, 2015, 2016, 2017), IEEE Transactions on Image processing, IEEE Transactions on Visualization and Computer Graphics, Computer Graphics Forum.
- TPC: SGP (2015), IEEE ICME (2012, 2013, 2014), IEEE ICIP (2013, 2014), VCIP 2016, CAD/Graphics 2017, GMP (2018, 2019), SPM (2019).