RAN YI

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EDUCATION

Tsinghua University, Beijing, China
Ph.D. Candidate in Computer Science, CS Dept., Sept 2016 - June 2021
Research Interests: Computer Vision and Computer Graphics

Tsinghua University, Beijing, China
B.A. in Electronic Engineering, EE Dept., Sept 2012 - June 2016
G.P.A. 94/100, Ranking 5/237

RESEARCH INTERESTS

Computer Vision and Computer Graphics: image and video generation, audio and vision, image and video segmentation, deep learning, 3D geometry processing, point cloud processing, robotics.

PROJECT EXPERIENCE

Tsinghua University (CS Dept.) - DeepBlue Technology (Shanghai) Company Limited Joint Research Center for Machine Vision Jan 2019-Present
Leader: Yong-Jin Liu, Funding: 15 million CNY
Conducted research on 3D scene perception and understanding, and robotic arm collision detection.

National Science Fund for Distinguished Young Scholars "Computational Geometry and Graphics" Jan 2018-Present
Leader: Yong-Jin Liu, Funding: 4 million CNY
Conducted research on Delaunay mesh simplification and Dirichlet energy of Delaunay mesh.

Changzhou Chinese Academy of Sciences Research and Development Center of Genetic Resources "National Crop Phenomics Research Facilities" August 2017-Present
Total funding: 30 million CNY, Funding for Yong-Jin Liu Group: 4.5 million CNY
Conducted research on weakly-supervised lesion region segmentation and multiple robotic arm collaboration.

Okawa Foundation Research Grant, Tokyo, Japan "Structure Analysis in Intelligent Processing of Big Visual Media Data" Jan 2017-Dec 2017
Leader: Yong-Jin Liu, Funding: 1 million JPY
Conducted research on geodesic centroidal voronoi tessellation and video supervoxel segmentation.

Royal Society-Newton Advanced Fellowship "Intrinsic Voronoi/Delaunay Structure on Manifold Mesh and its Applications in Visual Computing" March 2016-Feb 2019
Leader: Yong-Jin Liu, Funding: 110.7k £
Conducted research on video supervoxel segmentation and artistic portrait generation.

Science Fund for Creative Research Groups of the National Natural Science Foundation of China "Intelligent Processing of Network Visual Media" Jan 2016-Present

Leader: Shi-Min Hu, Funding: 10.5 million CNY
Conducted research on video supervoxel segmentation and artistic portrait generation.

Key Program of the Natural Science Foundation of China "Efficient Geometric Model and Content Generation for Large-scale Industrial 3D Printing" Jan 2015-Dec 2019
Leader: Zhong-Xuan Luo, Funding for Yong-Jin Liu Group: 1.05 million CNY
Conducted research on Delta DLP 3D printing of large model.

PUBLICATIONS

8 papers in top CV and CG journals and conferences: 2 TPAMI, 2 TOG, 3 CVPR, 1 ICCV

Journal papers

1. **Ran Yi**, Mengfei Xia, Yong-Jin Liu, Yu-Kun Lai, Paul L. Rosin. Line Drawings for Face Portraits from Photos using Global and Local Structure based GANs. IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), DOI (identifier) 10.1109/TPAMI.2020.2987931, 2020. (IF=17.861)

2. **Ran Yi**, Zipeng Ye, Wang Zhao, Minjing Yu, Yu-Kun Lai, Yong-Jin Liu. Feature-Aware Uniform Tessellations on Video Manifold for Content-Sensitive Supervoxels. IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), DOI 10.1109/TPAMI.2020.2979714, 2020. (IF=17.861)

3. **Ran Yi**, Yong-Jin Liu, Ying He. Delaunay Mesh Simplification with Differential Evolution. ACM Transactions on Graphics (SIGGRAPH Asia 2018), Vol. 37, No. 6, Article No. 263, 2018. (IF=6.495)

4. Yong-Jin Liu, Chun-Xu Xu, **Ran Yi**, Dian Fan, Ying He. Manifold Differential Evolution (MDE): A Global Optimization Method for Geodesic Centroidal Voronoi Tessellations on Meshes. ACM Transactions on Graphics (SIGGRAPH Asia 2016), Vol. 35, No. 6, Article No. 243, 2016. (IF=6.495)

5. **Ran Yi***, Chenming Wu*, Yong-Jin Liu, Ying He, Charlie C. L. Wang. Delta DLP 3D Printing of Large Model. IEEE Transactions on Automation Science and Engineering (TASE), Vol. 15, No. 3, pages 1193-1204, 2018. (IF=5.224)

6. Zipeng Ye, **Ran Yi**, Wengyong Gong, Yong-Jin Liu, Ying He. Dirichlet Energy of Delaunay Meshes and Intrinsic Delaunay Triangulations. Computer-Aided Design (CAD), DOI 10.1016/j.cad.2020.102851, 2020. (IF=3.049)

7. Zipeng Ye, Wenye Xia, Zhiyao Sun, **Ran Yi**, Minjing Yu, Yongjin Liu. From traditional rendering to differentiable rendering: theories, methods and applications. SCIENTIA SINICA Informationis, DOI 10.1360/SSI-2020-0272, 2020. (IF=3.304)

Conference papers ($*$ indicates joint first author)

1. **Ran Yi**, Yong-Jin Liu, Yu-Kun Lai, Paul L. Rosin. Unpaired Portrait Drawing Generation via Asymmetric Cycle Mapping. IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2020), pages 8217-8225, 2020.

2. **Ran Yi**, Yong-Jin Liu, Yu-Kun Lai, Paul L. Rosin. APDrawingGAN: Generating Artistic Portrait Drawings from Face Photos with Hierarchical GANs. IEEE Conference on Computer

Vision and Pattern Recognition (CVPR 2019), pages 10743-10752, 2019. (**oral presentation,** 5.6% **acceptance rate**).

3. Zipeng Ye*, **Ran Yi***, Minjing Yu, Yong-Jin Liu, Ying He. Fast Computation of Content-Sensitive Superpixels and Supervoxels using q-distances. IEEE Conference on Computer Vision (ICCV 2019), pages 3770-3779, 2019.

4. **Ran Yi**, Yong-Jin Liu, Yu-Kun Lai. Content-Sensitive Supervoxels via Uniform Tessellations on Video Manifolds. IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2018), pages 646-655, 2018.

5. Chenming Wu*, **Ran Yi***, Yong-Jin Liu, Ying He, Charlie C.L. Wang. Delta DLP 3D Printing with Large Size. The 2016 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2016), pages 2155-2160, 2016.

6. Wang Zhao*, **Ran Yi***, Yong-Jin Liu. An Adaptive Filter for Deep Learning Networks on Large-Scale Point Cloud. IEEE International Conference on Image Processing (ICIP 2019), pages 1620-1624, 2019.

7. Xu Yan, Yuntao Wang, **Ran Yi**, Zhiyu Sun, Yong-Jin Liu. StarFont: Enabling Font Completion Based on Few Shots Examples. Proceedings of the 2019 3rd International Conference on Advances in Artificial Intelligence (ICAAI 2019), pages 1-8, 2019.

8. **Ran Yi**, Yong-Jin Liu, Yu-Kun Lai. Evaluation on the Compactness of Supervoxels. IEEE International Conference on Image Processing (ICIP 2018), pages 2212-2216, 2018.

ARXIV

1. **Ran Yi**, Zipeng Ye, Juyong Zhang, Hujun Bao, Yong-Jin Liu. Audio-driven Talking Face Video Generation with Learning-based Personalized Head Pose. CoRR, vol. abs/2002.10137, 2020.

2. Zipeng Ye, **Ran Yi**, Minjing Yu, Juyong Zhang, Yu-Kun Lai, Yong-Jin Liu. 3D-CariGAN: An End-to-End Solution to 3D Caricature Generation from Face Photos. CoRR, vol. abs/2003.06841, 2020.

3. Yiheng Han, Wang Zhao, Jia Pan, Zipeng Ye, **Ran Yi**, Yong-Jin Liu. A Configuration-Space Decomposition Scheme for Learning-based Collision Checking. CoRR, vol. abs/1911.08581, 2019.

4. Zipeng Ye, **Ran Yi**, Minjing Yu, Yong-Jin Liu, Ying He. Geodesic Centroidal Voronoi Tessellations: Theories, Algorithms and Applications. CoRR, vol. abs/1907.00523, 2019.

5. Paul L. Rosin, Yu-Kun Lai, David Mould, **Ran Yi**, Itamar Berger, Lars Doyle, Seungyong Lee, Chuan Li, Yong-JIn Liu, Amir Semmo, Ariel Shamir, Minjung Son, Holger Winnemoller. NPRportrait 1.0: A Three-Level Benchmark for Non-Photorealistic Rendering of Portraits. CoRR, vol. abs/2009.00633, 2020.

COMPUTER SKILLS

- Programming languages: C++, Python, MATLAB
- Deep learning framework: Pytorch, Tensorflow, Caffe

HONORS AND AWARDS

- CCF-CV Academic Emerging Award (3 students in China), Nov 2019
- MSRA Fellowship Nomination Award (25 students in Asia-Pacific Area), Nov 2019
- Baidu Scholarship Top 40 (worldwide), Dec 2019
- National Graduate Student Scholarship, Nov 2020
- National Graduate Student Scholarship, Nov 2019
- National Graduate Student Scholarship, Nov 2018
- CCF-CV Academic Emerging Award Nomination, Nov 2018
- Phicomm (Shanghai) Co., Ltd Scholarship, October 2017
- Beijing Outstanding Graduates, June 2016
- Excellent Graduates of Tsinghua University, June 2016
- Excellent Academic Performance Single Scholarship, October 2015
- Excellent Academic Performance Single Scholarship, October 2014