ZHIPEI YAN

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RESEARCH INTERESTS

I'm interested in computer graphics and mathematics related problems including geometric modeling, curves and surfaces, geometric optimization, mesh processing, and etc.

EDUCATION

Texas A&M University *August 2015 - June 2021*
Ph.D. in Computer Science. GPA: 3.84/4.0
Dissertation: Control of Curvature Extrema in Curve Modeling
Advisor: Dr. Scott Schaefer

University of Science and Technology of China *July 2011 - June 2015*
Hons. B.Sc. in Mathematics, School of the Gifted Young(SCGY). GPA: 3.82/4.3
Thesis: Research on Spatial Wireframe Decomposition for 3D Printing
Advisor: Dr. Ligang Liu, Dr. Shizhe Zhou

WORK EXPERIENCE

Research Engineer, ByteDance Inc. *September 2021 - July 2022*

Worked as a Research Engineer at ByteDance on character animation projects. We developed an animation retargeting algorithm to transfer the motion of a rigged model to another rigged model using an intermediate skeleton. The algorithm has been used in virtual 3D human avatar related apps of Bytedance and TikTok, where a given model are animated by motion captured data.

R&D Intern, ByteDance Inc. *June 2020 - September 2020*

Worked with the Computer Vision & Graphics group in ByteDance on a mesh editing tool. We developed an anchor points controlled physical based mesh deformation effect, which allowed users to design their 3D shapes from scratch, or adjust 3D models locally. The effect uses parallel computing on mesh vertices and can run in real time for large meshes on mobile devices using iOS/Android.

Research Intern, Adobe Research *May 2017 - August 2017*

Worked with the graphics group in Adobe Research on the curve editing tool "Curvature Tool" in Adobe Illustrator and Photoshop. Built the fundamental theory of "κ-Curves" and extended the curve tool to higher degrees. Compared to the classic "Pen Tool", the new drawing tool is easier to manipulate and more popular on mobile devices.

R&D Intern, Hefei Abaci Science & Technology Co. Ltd *July 2014 - August 2014*

Worked on a 3D reconstruction software using depth cameras. Improved Kinect Fusion's algorithm to scan human's head to get a closed mesh without holes. Developed a 3D portrait software and integrated the software into a 3D printing system so that users can scan and reproduce 3D objects.

PUBLICATIONS

Jin L., Yan Z., Zuo L. and Stoleru R., "NanoCommunication-based Flow Path Mapping for NanoSensors in Underground Oil Reservoirs." *ACM International Conference on Nanoscale Computing and Communication*, (2020)

Jin L., Zuo L., Yan Z. and Stoleru R., "NanoCommunication-based Impermeable Region Mapping for Oil Reservoir Exploration." *ACM International Conference on Nanoscale Computing and Communication*, (2019)

Yan Z. and Schaefer S., "A Family of Barycentric Coordinates for Co-Dimension 1 Manifolds with Simplicial Facets." *Computer Graphics Forum* (Proceedings of the Symposium on Geometry Processing), Vol. 38, No. 5 (2019), pp. 075-083

Yan Z., Schiller S. and Schaefer S., "Circle reproduction with Interpolatory Curves at Local Maximal Curvature Points." *Computer Aided Geometric Design*, Vol. 72, No. 6 (2019), pages 98-110

Yan Z., Schiller S., Wilensky G., Carr N., and Schaefer S., "κ-Curves: Interpolation at Local Maximum Curvature." *ACM Transactions on Graphics* (Proceedings of SIGGRAPH), Vol. 36, No. 4, (2017), pp. 129:1-129:7

PATENTS

U.S. 2019/0164318 A1: "Continuous-curvature rational curves for drawing applications", May 30, 2019

HONORS AND AWARDS

2019.7 Best Paper Award of Symposium on Geometry Processing (SGP) 2019
2015.6 Honorary rank of University of Science and Technology of China, top 2% students
2015.5 Excellent Bachelor Thesis of University of Science and Technology of China
2013.6 National Undergraduate Mathematical Contest of China, Anhui Division: 1st Grade
2012.5 12th RoboGame of USTC: 3rd Place

SKILLS

- C/C++/Wolfram Mathematica/Matlab/Python/OpenGL/CUDA/GPU/Mobile Development
- Geometric Modeling/Mesh Processing/Visualization/Rendering/3D Reconstruction
- Spline Curves and Surfaces/Discrete Differential Geometry/Numerical Optimization

ACADEMIC ACTIVITIES

Reviewer of Computer-Aided Design, 2017, 2018, 2020
Reviewer of IEEE Computer Graphics and Applications, 2020
Reviewer of The Visual Computer Journal, 2020
Reviewer of ACM Transactions on Graphics, 2020
Reviewer of ACM Siggraph, 2020
Reviewer of ASME International Design Engineering Technical Conferences, 2019
Reviewer of IEEE Transactions on Visualization and Computer Graphics, 2019
Reviewer of Applied Mathematics and Computation, 2018

Presentation on Symposium on Geometry Processing 2019, Milan, Italy
Presentation on ACM Siggraph 2017, Los Angeles, CA, USA
Student Volunteer at Geometric Modeling and Processing 2016, San Antonio, TX, USA
Social Officer of Computer Science and Engineering Graduate Student Association, 2018 - 2019