

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

Engineer Senior Systems Software, Nvidia Inc.

August 2022 - Now

Working for the Autonomous Driving Vehicle team at Nvidia. Leading the development of the fastest, most efficient parallel architectures to power advanced deep learning algorithms to unlock unprecedented scientific advancement in numerous computation and data-heavy fields, including the research and development of survey level HD mapping and localization services.

Research Engineer, ByteDance Inc.

September 2021 - July 2022

Worked as a Research Engineer for the digital human team at ByteDance. We developed character animation and 3D geometry processing algorithms for users to create their own digital avatars with visual effects and live animation. And we provided an end-to-end solution using the algorithms in virtual 3D human related apps of Bytedance and TikTok.

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 a physical based mesh deformation algorithm, which allowed users to design their 3D shapes from scratch, or edit 3D models locally. The algorithm utilizes parallel computing on mesh vertices and can run in real time for large size meshes on mobile devices using iOS/Android.

Research Intern, Adobe Research

May 2017 - August 2017

Worked with the graphics group at Adobe Research to develop 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. This new drawing tool is easier to manipulate and even more popular on mobile devices compared to the classic "Pen Tool",.

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 bodies to get a closed mesh without holes. Developed a 3D portrait software with integration to a 3D printing system for users to scan and replicate 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

2019.10 Travel Grant Award of Department of Computer Science and Engineering, TAMU

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

ACTIVITIES

Reviewer of Pacific Graphics, 2023, 2024

Reviewer of ACM Siggraph Asia, 2023

Reviewer of ASME International Design Engineering Technical Conferences, 2019, 2020, 2023

Reviewer of The Visual Computer Journal, 2020, 2023

Reviewer of Punjab University Journal of Mathematics, 2022

Reviewer of Computer-Aided Design, 2017, 2018, 2020, 2021

Reviewer of IEEE Computer Graphics and Applications, 2020, 2021

Reviewer of ACM Siggraph, 2020

Reviewer of ACM Transactions on Graphics, 2020

Reviewer of IEEE Transactions on Visualization and Computer Graphics, 2018, 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, TAMU, 2018 - 2019