

Hang Li

Department of Computer Science and Engineering
Texas A&M University
College Station, TX 77843-3112
USA

hangli@tamu.edu
(979) 676-5292
<http://people.tamu.edu/~hangli/>
<https://www.linkedin.com/in/hanglitamu/>

Research Interests

- Computer Graphics: Geometric Modeling, Computer Aided Geometry Design, Rendering, GPU Programming and Acceleration (GLSL), 3D Printing Algorithms

Education

- **Texas A&M University** 2015 - August 2020 (expected)
Ph.D. Candidate in Computer Science
Advisor: John Keyser
- **University of Science and Technology of China** 2011 - 2015
B.S. in Mathematics
Thesis: A Slicing Algorithm Based on Implicit Expression in 3D Printing
Advisor: Zhouwang Yang, Ligang Liu

Publications

- [1] Li, H., Xu, S., Keyser, J., Optimization for Statistical Tolerance Allocation. Submitted to Computer-Aided Geometric Design, under review.
- [2] Xu, S., Li, H., Keyser, J., Field-Aware Parameterization for 3D Painting. Computer Graphics International Conference, pp. 131-142. Springer, Cham, 2019.
- [3] Wang, W., Chao, H., Tong, J., Yang, Z., Tong, X., Li, H., Liu, X., Liu, L., Saliency-Preserving Slicing Optimization for Effective 3D Printing. Computer Graphics Forum. Vol. 34. No. 6. 2015.
- [4] Xu, W., Wang, W., Li, H., Yang, Z., Liu, X., Liu, L., Topology Optimization for Minimal Volume in 3D Printing. Journal of Computer Research and Development. Vol. 52(1). 2015.

Experience

- **Software Engineer Intern** May 2019 - Aug 2019
Halliburton, Houston, TX
 - Developed a volumetric rendering algorithm for data visualization with GPU acceleration
 - Built a WebGL-based 3D Viewer and embedded it into an existing software
 - Designed a VR application for immersive data visualization
- **Teaching Assistant** 2016 - present
Department of Computer Science and Engineering, Texas A&M University
 - CSCE-441 Computer Graphics (Fall 2016/Spring 2017/Fall 2017/Fall 2018/Fall 2019)
 - CSCE-121 Introduction to Program Design and Concepts (Summer 2018/Spring 2019)
 - Held office hours, ran labs, and graded assignments
- **Research Assistant** 2015 - present
Department of Computer Science and Engineering, Texas A&M University
 - Created a scheme for tolerance arrangement based on a statistical tolerance model
 - Built an efficient 3D painting system with local parameterization
 - Presented a new representation method for shapes as a combination of Gaussian functions
 - Proposed methods to support geometric analysis and construction planning for filament winding

- **Research Assistant** 2013 - 2015
Graphics & Geometric Computing Lab, University of Science and Technology of China
 - Presented an adaptive slicing scheme for reducing manufacturing time of 3D printing system
 - Developed a fast slicing algorithm for implicit 3D model printing
 - Designed a data-driven algorithm to reconstruct 3D shapes from a single image

Selected Projects

Details and more projects on <http://hangli.graphics/projects>

- **GPU-Based Real-Time Anisotropic Anti-Aliasing**
Developed a real-time spatial anisotropic anti-aliasing algorithm with GLSL and mipmap for rendering scenes with high frequency textures.
- **Distributed Ray Tracer and Photon Mapping**
Implemented a distributed ray tracer with photon mapping and environment mapping, which can generate caustics effect, depth of field (DOF) effect, and 3D stereo view.
- **Spectrum Rendering and Cook-Torrance BRDF**
Simulated the appearances of different materials in the sunlight by a spectrum rendering algorithm with Cook-Torrance BRDF.
- **Marching Cube and Toon Shading**
Implemented a marching cube algorithm and a real-time toon shader (GLSL) which can be used for 3D implicit surface display.
- **Course Self-Evaluation Web App**
Designed a web app where students can evaluate their qualifications for a course. The app was implemented with Ruby on Rails.
- **Radiosity Rendering**
Improved the radiosity rendering algorithm for room rendering with GPU acceleration.
- **Music Player with Fluid Simulation**
Developed a music player with frequency visualization based on fluid simulation.

Programming Skills

Primary: C++, Mathematica, OpenGL(GLSL)

Secondary: C, C#, Fortran, HTML, Java, JavaScript, L^AT_EX, MATLAB, R, Ruby on Rails, VBA, WebGL

Awards and Honors

- Outstanding Undergraduate Scholarship, USTC 2012, 2013
- Leadership Scholarship, USTC 2013, 2014

Services and Organizations

- Reviewer, TVCG (IEEE Transactions on Visualization and Computer Graphics) 2019 - present
- Reviewer, CAD (Computer-Aided Design) 2018 - present
- Vice President, Student Union of School of Mathematical Sciences, USTC 2013 - 2014