

EDUCATION

- **University of Pennsylvania** Philadelphia, PA
Master of Science in Engineering in Computer Graphics and Game Technology Aug. 2018 - Dec. 2019
- **Beijing University of Technology** Beijing, China
Bachelor of Engineering in Software Engineering; GPA: 3.8 (Ranking 1/62) Sep. 2014 - Jun. 2018

PUBLICATIONS

- Li, Y.**, Li, X., Li, M., Zhu, Y., Zhu, B., & Jiang, C. (2020). A Hybrid Lagrangian-Eulerian Method for Topology Optimization. arXiv preprint arXiv:2003.01215. (Three joint first-authors)
- Li, Y.**. Master Thesis: Hybrid Eulerian-Lagrangian Topology Optimization
- Li, Y.**, Ma, L., Fan, H., & Mitchell, K. (2018). Feature-preserving detailed 3d face reconstruction from a single image. In *Proceedings of the 15th acm siggraph european conference on visual media production* (1:11:9). London, United Kingdom: ACM (**Best Paper Award**)
- Li, Y.**, Wiedemann, P., & Mitchell, K. (2019). Deep Precomputed Radiance Transfer for Deformable Objects. *Proceedings of the ACM on Computer Graphics and Interactive Techniques*, 2(1), 1-16.
<https://doi.org/10.1145/3320284>
- Tang, Y., Han, X., **Li, Y.**, Ma, L., & Tong, R. (2019b). Expressive facial style transfer for personalized memes mimic. *The Visual Computer*, 113

RESEARCH EXPERIENCE

- **Max Planck Institute for Informatics** Saarbruecken, Germany
Visiting Scholar, Advisor: Prof. Christian Theobalt and Dr. Thabo Beeler Mar. 2020 - Aug. 2020
 - **Human Performance Capture:** .
- **University of Pennsylvania** Philadelphia, PA
Research Assistant, Advisor: Prof. Chenfanfu Jiang Jan. 2019 - present
 - **Topology Optimization:** Using Hybrid Lagrangian-Eulerian method to address nonlinear and linear topology optimization problems.
- **Disney Research** Glendale, CA
Research Intern, Advisor: Prof. Kenny Mitchell May. 2019 - Aug. 2019
 - **Accerlate probe images rendering with deep learning:** Probe images rendering, customized neural network architecture design
 - **Real time face reconstruction on mobile devices:** Precomputation, Block-Jacobi approximation
- **Edinburgh Napier University**
Research Intern, Advisor: Prof. Kenny Mitchell Jun. 2018 - Sep. 2018
 - **Rendering and Deep Learning :** Using deep learning techniques, convolution neural network, to account for deformable objects with global illumination for Precomputed Radiance Transfer with a significant amount of storage saving. Related work has been accepted to PACM CGIT.
- **Megvii Inc.(Face++)** Beijing, China
Research Intern, Leader: Dr. Liqian Ma, Mr. Haoqiang Fan Jul. 2017 - May 2018
 - **Real-time 3D Detailed Face Reconstruction with Neural Network:** Using fully convolutional neural network to achieve 3D face reconstruction from a single RGB image real-time on PC with CPU or GPU. Smaller model is able to run on mobile devices in real time.
 - **Optimization-based 3D Detailed Face Reconstruction from a Single Image:** Optimization-based 3D face reconstruction from a single RGB image with details. The system is robust under various illuminations, large poses and expressions. A paper regarding this work has been accepted by CVMP2018 and awarded the Best Paper Award.
 - **3D Animoji Avatar:** Implemented *Deformation Transfer for Triangle Meshes* to transfer expression basis from Face Warehouse data to our customized 3D avatars.

- **Asian Morphable Model:** Constructed an Asian morphable model from scanned data. Implemented two Siggraph papers in registration and deformation with improvements added. Reproduced *Example-Based Facial Rigging* to generate expressions for each scanned individuals and utilized PCA to compute 46 muscle-based expression basis and an average face. Implemented *Guided Normal Mesh Filtering* for denoising. In charge of all related data examination, cleaning and deformation processes for our scanned data.
- **3D Landmark Annotation Tool:** Developed an easy-to-use, fast and robust 3D landmark annotation tool using OpenGL for 3D scanned mesh data and a related patent have been submitted to our intellectual property department.

• Tsinghua University

Beijing, China

Research Assistant

Nov. 2016 - Apr. 2017

- **Laplacian Deformation::** Implemented *Laplacian Surface Editing* to registrate 3D scanned face to a template mesh.
- **PolyCube Deformation::** Solving optimization-based Poisson system for mesh deformation using face normal as soft constraints. Segmenting PolyCube models, extracting featured edges and vertices and rendering results utilizing Mitsuba.

COURSE PROJECT

- **CIS563 Physics-based Animation** Implementation of explicit and implicit material point method for snow simulation from scratch. (Fall 2018)
- **CIS561 Advanced Rendering** Implementation of path tracing, bidirectional path tracing, photon mapping, volumetric rendering and motion blur. (Spring 2019)
- **CIS660 Advanced Topics in Computer Graphics** Implementation of *Drucker-Prager Elastoplasticity for Sand Animation* as a Houdini plugin. (Spring 2019)

TEACHING EXPERIENCE

- **CIS563 Physics-based Animation** Fall 2019 Teaching Assistant

PROGRAMMING SKILLS

- **Languages:** C++, Python, Julia, Matlab **Libraries:** Ipopt, Eigen, OpenMesh, Libigl, Keras, CGAL, Optix
Softwares: Houdini, Maya, Meshlab, Mitsuba