Yue Li

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EDUCATION

Swiss Federal Institute of Technology in Zurich(ETH Zurich)　　　　Zurich, Switzerland
Doctor of Philosophy　　　　　　　　　　　　　　　　　　　　　　　　　　　*Sep. 2020 -*

University of Pennsylvania　　　　　　　　　　　　　　　　　　　Philadelphia, USA
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 forpersonalized 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