Yue Li

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Education

- **ETH Zurich** — Zurich, Switzerland
  Ph.D. in Computer Science — *Sep. 2020 -*
- **University of Pennsylvania** — Philadelphia, USA
  M.S.E in Computer Graphics and Game Technology; GPA: 3.9/4.0 — *Aug. 2018 - Dec. 2019*
- **Beijing University of Technology** — Beijing, China
  B.S.E in Software Engineering; GPA: 3.8/4.0 (Ranking 1/62) — *Sep. 2014 – Jun. 2018*

Publications

Li, Yue, Marc Habermann, Bernhard Thomaszewski, Stelian Coros, Thabo Beeler, and Christian Theobalt. "Deep Physics-aware Inference of Cloth Deformation for Monocular Human Performance Capture." arXiv preprint arXiv:2011.12866 (2020).

Casas, Llogari, **Yue Li**, and Kenny Mitchell. "FaceMagic: Real-time Facial Detail Effects on Mobile." In SIGGRAPH Asia 2020 Technical Communications, pp. 1-4. 2020.

Li, Yue*, Xuan Li*, Minchen Li*, Yixin Zhu, Bo Zhu, and Chenfanfu Jiang. "Lagrangian-Eulerian Multi-density Topology Optimization with the Material Point Method." arXiv preprint arXiv:2003.01215 (2020). (* joint first authors)

Li, Yue. Master Thesis: Hybrid Eulerian-Lagrangian Topology Optimization

Li, Yue, Liqian Ma, Haoqiang Fan, and Kenny Mitchell. "Feature-preserving detailed 3d face reconstruction from a single image." In Proceedings of the 15th ACM SIGGRAPH European Conference on Visual Media Production, pp. 1-9. 2018. **(Best Paper Award)**

Li, Yue, Pablo Wiedemann, and Kenny Mitchell. "Deep Precomputed Radiance Transfer for Deformable Objects." Proceedings of the ACM on Computer Graphics and Interactive Techniques 2, no. 1 (2019): 1-16.

Tang, Yanlong, Xiaoguang Han, **Yue Li**, Liqian Ma, and Ruofeng Tong. "Expressive facial style transfer for personalized memes mimic." The Visual Computer 35, no. 6 (2019): 783-795.

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**: Incoporating FEM-based cloth simulation into learning-based monocular human performance capture framework.
- **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 a fully convolutional neural network to achieve 3D face reconstruction from a single RGB image real-time on PC with CPU or GPU. A 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** UPenn Fall 2019 Teaching Assistant
- **Visual Computing** ETH Zurich Fall 2020 Teaching Assistant

Programming Skills

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