

# XIAO LI

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## 🔬 RESEARCH INTERESTS

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**Computer Graphics** and **Computer Vision** in the following topic:

- 3D reconstruction and generation
- Appearance modeling and (differentiable) rendering
- Image-based modeling and synthesis

## 🎓 EDUCATION

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**University of Science and Technology of China** 2013 – 2019

**USTC-MSRA Joint Ph.D.** in Pattern Recognition & Intelligent Systems

Department of Automation

Supervisor: Prof. Baining Guo and Prof. Yong Wang

**University of Science and Technology of China** 2009 – 2013

**B.Eng.** in Electronic Engineering

Department of Electronic Engineering and Information Science

## 👥 EXPERIENCE

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**Media Computing group, Microsoft Research Asia** May. 2020 – Present

*Researcher* Manager: Dr. Yan Lu

Working as a researcher in Media Computing group.

**Y-tech Graphics AI group, Kuaishou Technology** Aug. 2019 – May 2020

*Algorithm Engineer* Manager: Dr. Chongyang Ma

Conducted innovative R&D projects in the topic of AI for Computer Graphics. Provided algorithm solutions for Kuaishou's apps, e.g. Kuaishou / Yitian camera. Collaborated with universities and research institutes on cutting-edge CG/CV research.

**Internet Graphics group, Microsoft Research Asia** July. 2014 – June. 2019

*Research Intern (Joint Ph.D. program)* Mentor: Dr. Xin Tong and Dr. Yue Dong

Worked as a research intern in Internet Graphics group. Conducted research on 3D shape modeling, appearance capture and modeling with learning approach.

**Internet Graphics group, Microsoft Research Asia** July. 2012 – June. 2013

*Research Intern (Pre-Ph.D. program)* Mentor: Dr. Lvdi Wang

Worked as a research intern in Internet Graphics group. Conducted research and development on news visualization, image morphing, image-based hair modeling and interpolation.

## 📈 PROFESSIONAL ACTIVITIES

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- **Paper reviewer:** Pacific Graphics 2015 / 2016 / 2017; SIGGRAPH Asia 2019; CVPR 2020; SMI 2020; ECCV 2020

## 👥 SOCIAL ACTIVITIES

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- **Executive director**, MSRA Joint Ph.D. Alumni, 2019 - Present
- **Team Leader**, MSRA Intern Committee Activity Team, 2015 - 2018
- **Co-organizer**, MSRA Student TechFest 2016 / 2018
- **City Volunteer**, Beijing 2008 Summer Olympic Games

## ⚙️ PROJECTS

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### Portrait image manipulation and stylization

Oct. 2019 – Present

Developing multiple algorithms for application on portrait image manipulation, including semantic edge extraction, hand-drawn portrait stylization, and face image synthesis with GANs. Implemented algorithms are being integrated as features into "Kuaishou" video app and "Yitian" camera app.

### 3D shape synthesis from image collections

July. 2017 - Apr. 2019

Developed methods for category-specific 3D shapes generation with GAN. As 3D shape data of novel categories are either non-accessible or having few amounts, We developed a novel multi projection GAN method to use large amount of 2D silhouette image collections for training 3D shape generators.

### Appearance modeling and capturing with learning approach

June. 2015 - Apr. 2019

Developed multiple methods for appearance modeling and capturing with learning methods. For single image appearance modeling, we developed a novel self-augment training scheme that utilize large amount of unlabeled photographs, overcoming the lack of labeled training data in appearance modeling field; for appearance capturing, we developed a unified deep inverse rendering framework that optimizes for the appearance parameters in a data-driven latent embedded space, which enables high-resolution appearance estimation from an arbitrary number of inputs.

### Hair modeling and synthesis from portrait images

Nov. 2012 - July 2013

Developed methods to generate strand-based 3D hair models from single portrait images and synthesis novel 3D hair shapes by building strand-to-strand correspondences and morphing between multiple hair models.

## 📄 PUBLICATIONS

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**MM 2020** Distribution Aligned Multi-Domain and Multimodal Image Stylization  
(in submission) Minxuan Lin, **Xiao Li**, Fan Tang, Chongyang Ma, Weiming Dong

**CVPR 2019** Synthesizing 3D Shapes from Silhouette Image Collections using Multi-projection Generative Adversarial Networks  
**Xiao Li**, Yue Dong, Pieter Peers, Xin Tong

**SIGGRAPH 2019** Deep Inverse Rendering for High-resolution SVBRDF Estimation from an Arbitrary Number of Images  
Duan Gao\*, **Xiao Li**\*, Yue Dong, Pieter Peers, Xin Tong (\*equal contribution)

**arxiv preprint** Mimicking the In-Camera Color Pipeline for Camera-Aware Object Compositing  
Jun Gao, **Xiao Li**, Liwei Wang, Sanja Fidler, Stephen Lin

**CGI 2019** Capturing Piecewise SVBRDFs with Content Aware Lighting  
(short paper) **Xiao Li**, Peiran Ren, Yue Dong, Gang Hua, Xin Tong, Baining Guo

**Pacific Graphics 2018** Single Photograph Surface Appearance Modeling with Self-augmented CNNs and Inexact Supervision  
Wenjie Ye, **Xiao Li**, Yue Dong, Pieter Peers, Xin Tong

**SIGGRAPH 2017** Modeling Surface Appearance from a Single Photograph using Self-Augmented Convolutional Neural Networks  
**Xiao Li**, Yue Dong, Pieter Peers, Xin Tong

**Pacific Graphics 2013** Hair Interpolation for Portrait Morphing  
Yanlin Weng, Lvdi Wang, **Xiao Li**, Menglei Chai, Kun Zhou

## ⚙ SKILLS

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- Programming: C++ / Python / CUDA
- Machine learning framework: Tensorflow / PyTorch / Caffe
- Languages: Mandarin / English

## ♡ HONORS AND AWARDS

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Microsoft Research Asia Stars of Tomorrow (Award of Excellence)	June. 2019
Most Creative Award, MSRA Student TestFest 2018	April. 2018
Hitachi Scholarship, University of Science and Technology of China	Sept. 2012
Excellent Student Scholarship, Silver, University of Science and Technology of China	Sept. 2011
Excellent Student Scholarship, Bronze, University of Science and Technology of China	Sept. 2010