

# Xiaoxu Meng

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## Work Experience

Research Scientist in Tencent America

Feb. 2021 - Present

## Education

University of Maryland, College Park

Ph.D. in Computer Science  
Dean's Scholarship

Advisor: Amitabh Varshney

Jan. 2019 - Dec. 2020

College Park, MD

University of Maryland, College Park

Master in Electrical and Computer Engineering  
Jimmy H. C. Lin Graduate Scholarship for Entrepreneurship

Advisor: Joseph F. JaJa

Sep. 2015 - Dec. 2018

College Park, MD

Shanghai Jiao Tong University

B.S. in Microelectronics  
Top 1% B.S. Thesis Award, Outstanding Undergraduate Award

Sep. 2011 - Jun. 2015

Shanghai, China

## Publication

[9] **Xiaoxu Meng**, Weikai Chen, Bo Yang. *NeAT: Learning Neural Implicit Surfaces with Arbitrary Topologies from Multi-view Images*. The IEEE/CVF Conference on Computer Vision and Pattern Recognition 2023 (CVPR)

[8] Yu-Tao Liu, Li Wang, Jie Yang, Weikai Chen, **Xiaoxu Meng**, Bo Yang, Lin Gao. *NeUDF: Learning Neural Unsigned Distance Fields with Volume Rendering*. The IEEE/CVF Conference on Computer Vision and Pattern Recognition 2023 (CVPR)

[7] Lan Chen, Jie Yang, Hongbo Fu, **Xiaoxu Meng**, Weikai Chen, Bo Yang, Lin Gao. *IMPLICITPCA: Implicitly-Proxied Parametric Encoding for Collision-Aware Garment Reconstruction*. Computational Visual Media Conference (Oral) 2023, also appear on Graphical Models (GM)

[6] Li Wang, Jie Yang, Weikai Chen, **Xiaoxu Meng**, Bo Yang, Jintao Li, Lin Gao. *HSDF: Hybrid Sign and Distance Field for Modeling Surfaces with Arbitrary Topologies*. Neural Information Processing Systems 2022 (NIPS)

[5] Jiannan Ye, Anqi Xie, Susmija Jabbireddy, Yunchuan Li, Xubo Yang, **Xiaoxu Meng**. *Rectangular Mapping-based Foveated Rendering*. The IEEE Conference on Virtual Reality and 3D User Interfaces 2022 (IEEE VR)

[4] **Xiaoxu Meng**, Quan Zheng, Amitabh Varshney, Gurprit Singh, and Matthias Zwicker. *Real-time Monte Carlo Denoising with the Neural Bilateral Grid*. Eurographics Symposium on Rendering 2020 (EGSR)

[3] **Xiaoxu Meng**, Ruofei Du, and Amitabh Varshney. *Eye-dominance-guided Foveated Rendering*. IEEE Transaction on Visualization and Computer Graphics (TVCG), Vol. 26, No. 5, 19, 2020.

[2] **Xiaoxu Meng**, Ruofei Du, Joseph F. JaJa, and Amitabh Varshney. *3D-Kernel Foveated Rendering for Light Fields*. IEEE Transactions on Visualization and Computer Graphics (TVCG), Vol. 26, No. 6, 111, 2020.

[1] **Xiaoxu Meng**, Ruofei Du, Matthias Zwicker, and Amitabh Varshney. *Kernel Foveated Rendering*. Proceedings of the ACM on Computer Graphics and Interactive Techniques (I3D), Vol. 1, No. 5 (2018).

## Patent

[4, Pending] Yu-Tao Liu, Li Wang, Jie Yang, Weikai Chen, **Xiaoxu Meng**, Bo Yang, Lin Gao. *NeUDF: Learning Neural Unsigned Distance Fields with Volume Rendering*.

[3, Pending] **Xiaoxu Meng**, Weiyang Li, Bo Yang. *SmartSkirt: Parametric Skirt Reconstruction from Multi-view Images*.

[2, Pending] **Xiaoxu Meng**, Weikai Chen, Bo Yang. *3D Reconstruction Method and Device, and Storage Medium*.

[1] Vytyaz, Igor, Stava, Ondrej, Hemmer, Michael, **Meng, Xiaoxu**. *Compression of Data Representing Triangular Mesh Attributes Using Machine Learning*. Patent WO/2020/123252. Publication date: June 18, 2020.

## Research Experience

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### **3D Clothes Reconstruction from Multi-view Images**

#### **Research Scientist in Tencent, Feb 2021 - Feb 2023**

- Proposed a novel neural rendering framework that can learn high-fidelity implicit surfaces with arbitrary topologies from multi-view images, and supports easy field-to-mesh conversion.
- Desigend SmartSkirt, a parametric skirt generation model that reconstructs high-fidelity skirt from three-view drawings. This innovative technology will be launched in game Speed Drifters.
- Participated in the AlphaCloth project, which reconstructs 3D clothes from three-view drawings and will be launched in game Speed Drifters.

### **Hand Mesh Reconstruction from Single RGB Images**

#### **Research intern in Facebook Reality Labs, May 2019 - August 2019**

- Implemented an end-to-end convolutional neural network that predicts 3D hand shape and pose from a single RGB image.

### **DRACO Smart Geometry Encoder (Python, C++)**

#### **Software engineer intern in Google Inc., May 2018 - Aug. 2018**

- Participated in the development of DRACO, a library for compressing and decompressing 3D geometric models. Mainly focused on DRACO Smart Geometry Encoder, which uses machine learning techniques to select the best encoding options.

### **Real-time Monte Carlo Denoising with the Neural Bilateral Grid (Python, C++)**

#### **Research Assistant in University of Maryland - College Park, Sep. 2017 - Jan. 2020**

- Designed a practical deep learning approach to robustly denoise Monte Carlo images using differentiable neural bilateral grids, which have demonstrated better denoising quality and higher speed than existing methods at low sample rates.

### **Kernel Foveated Rendering (C++)**

#### **Research Assistant in University of Maryland - College Park, Jan. 2017 - May 2019**

- Designed kernel foveated rendering, eye-dominance-guided foveated rendering, 3D-kernel foveated rendering for light fields, and rectangular mapping-based foveated rendering.

## Professional Service

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### **Paper Committee**

Served as committee member for the following conferences: EGSR 2023, HPG 2022, HPG 2021

### **Reviewer**

Served as reviewer for the following conferences: IEEEVR 2022, ISMAR 2021, IEEEVR 2020, VRST 2020, ICMI 2020, CHI 2020, CAD/Graphics 2019, PG 2018, CGI 2018.

### **Conference Chair**

Served as student volunteer chair for IEEEVR 2023.