Xiaoxu Meng

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Education

University of Maryland, College Park *Jan. 2019 - Dec. 2020*
Ph.D. in Computer Science Advisor: Amitabh Varshney *College Park, MD*
Dean's Scholarship

University of Maryland, College Park *Sep. 2015 - Dec. 2018*
Master in Electrical and Computer Engineering Advisor: Joseph F. JaJa *College Park, MD*
Jimmy H. C. Lin Graduate Scholarship for Entrepreneurship

Shanghai Jiao Tong University *Sep. 2011 - Jun. 2015*
B.S. in Microelectronics *Shanghai, China*
Top 1% B.S. Thesis Award, Outstanding Undergraduate Award, SAMSUNG Scholarship

Work Experience

Research Scientist, Tencent America *Feb. 2021 - Now*

- **Garment Reconstruction**: Developed and launched an avatar garment reconstruction tool for the game Speed Drifters, with one patent and one paper published.
- **Image-to-3D**: Trained a transformer-based model to generate 3D meshes from single images.
- **NeRF (Neural Radiance Fields)**: Filed 2 patents and published 5 papers on 3D reconstruction/generation.

Research Intern, Facebook Reality Labs *May 2019 - Aug. 2019*

- **Hand Pose Estimation**: Implemented an end-to-end network that predicts 3D hand from single images.

Software Enginee Intern, Google *May 2018 - Aug. 2018*

- **Geometry Compression**: Developed DRACO Smart Encoder, leveraging machine learning to optimize geometry encoding options.
- Filed one patent "Efficient compression of data representing triangular mesh attributes" (U.S. Patent 11,631,218).

Skills

- **Languages**: **C**++, Python, Pytorch, TensorFlow, C#, GLSL
- **Research Area**: 3D reconstruction, differentiable rendering, Neural Radiance Fields (NeRF), 3D Gaussian Splatting, image-to-3D, text-to-3D, image denoising

Patent

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

[3] Jie Yang, Li Wang, Weikai Chen, **Xiaoxu Meng**, Bo Yang, Jintao Li, Lin Gao, Jun Yin. *HSDF: Hybrid Sign and Distance Field for Modeling Surfaces with Arbitrary Topologies*

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

[1] Vytyaz, Igor, Ondrej Stava, Michael Hemmer, and **Xiaoxu Meng**. *Efficient compression of data representing triangular mesh attributes.* U.S. Patent 11,631,218, issued April 18, 2023.

Publication

[12] Yu-Tao Liu, Xuan Gao, Weikai Chen, Jie Yang, **Xiaoxu Meng**, Bo Yang, and Lin Gao. *DreamUDF: Generating Unsigned Distance Fields from A Single Image.* To appear in ACM Transactions on Graphics, also in SIGGRAPH Asia 2024

[11] Yu-Tao Liu, Li Wang, Jie Yang, Weikai Chen, **Xiaoxu Meng**, Bo Yang, and Lin Gao. *NeUDF: Learning Neural Unsigned Distance Fields with Volume Rendering.* IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)

[10] Jiannan Ye, **Xiaoxu Meng**, Daiyun Guo, Cheng Shang, Haotian Mao, Xubo Yang. *Neural Foveated Super-Resolution for Real-time VR Rendering.* Computer Animation and Virtual Worlds 2024

[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: Leaning 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, 1âĂŞ9, 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, 1âĂŞ11, 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).

Professional Service

Paper Committee

Served as a committee member for the following conferences: EGSR (2022 - 2024), HPG (2021 - 2024).

Reviewer

Served as a reviewer for the following conferences: CVPR, SIGGRAPH ASIA, TVCG, IEEE VR, etc.

Conference Chair

Served as student volunteer chair for IEEE VR 2023.