Xiaoxu Meng

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Work Experience

Research Scientist in Tencent America *Feb. 2020 - Now*

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

Publication

[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

[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 Areas & Skills

- **Languages: C**++, Python, C#, Matlab/Simulink, GLSL, Pytorch, TensorFlow
- **Research Topics**: foveated rendering, Monte Carlo denoising, mesh reconstruction from RGB image
- **Academic Knowledge:** computer graphics, computer vision, deep learning

Research Experience

Hand Mesh Reconstruction from Single RGB Images
Research intern in Facebook Reality Labs, May 2019 - Augest 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 meshes and point clouds. Mainly focused on DRACO Smart Geometry Encoder, which extracts mesh features and 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, which parameterize the foveation level by embedding polynomial kernel functions in the classic log-polar mapping.
· Designed the 3D-kernel foveated rendering for light fields, which automatically selects the optimal foveation parameters for each slice in the light fields according to the gaze position and achieves higher speedup.
· Designed the eye-dominance-guided foveated rendering, which renders the scene with higher detail for the dominant eye than the non-dominant eye.
· Leaded the project of Rectangular Mapping-based foveated rendering, which solves the problem of the curved artifacts by dealing with the horizontal and vertical fields independently.

Professional Service

International Paper Committee
International Paper Committee for Conference High-Performance Graphics 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.