Daniel Meister

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Education

The Czech Technical University in Prague — Prague, Czech Republic
- Ph.D. in Information Science and Computer Engineering — *2014 – 2018*
- M.Sc. in Computer Graphics and Interaction — *2012 – 2014*
- B.Sc. in Software Engineering — *2009 – 2012*

Work Experience

- Member of Technical Staff, Advanced Micro Devices, Inc. — 2023/7 – Present
- Senior Software Engineer, Advanced Micro Devices, Inc, — 2021/9 – 2023/6
- Postdoctoral Researcher, The University of Tokyo — 2019/9 – 2021/8
- Researcher, Czech Technical University in Prague — 2017/11 – 2019/8
- External Developer, Škoda Auto — 2014/10 – 2017/3

Computer Skills

C/C++, CUDA, HIP, OpenCL, OpenGL, OptiX, Embree, Matlab, Python, PyTorch, Bash, Git, CMake, LaTeX

Research Interests

Data Structures for Ray Tracing, Real-Time Ray Tracing, GPGPU, Parallel Computing, Global Illumination, Machine Learning for Rendering

Languages

Czech (*native language*), English (*fluent*), Japanese (*pre-advanced - JLPT N2*), French (*basic knowledge*) and Spanish (*basic knowledge*)

Professional Visits Abroad

- National Institute of Informatics, Japan (5 months) — 2017
- Vienna University of Technology, Austria (1 month) — 2014

Teaching

- CTU Algorithms of Computer Graphics (English) — 2018
- CTU Algorithms of Computer Graphics (Czech) — 2015

Awards

- JSPS Postdoctoral Fellowship (standard) — 2019
- Finalist of Antonín Svoboda Award for the Best Ph.D. Thesis — 2019
- Dean's Award (Outstanding Dissertation, Doctoral course) — 2019

Professional Society Membership

Upsilon Pi Epsilon Honor Society

Reviewer

Eurographics, Eurographics Symposium on Rendering, Pacific Graphics, Computer Graphics Forum, High-Performance Graphics, Journal of Computer Graphics Techniques, Graphical Models, IEEE Computer Graphics and Applications

Publications

Daniel Meister and Jiří Bittner. Performance Comparison of Bounding Volume Hierarchies for GPU Ray Tracing. *Journal of Computer Graphics Techniques* (*JCGT*), 2022

Daniel Meister and Toshiya Hachisuka. Lightweight Multidimensional Adaptive Sampling for GPU Ray Tracing. *Journal of Computer Graphics Techniques* (*JCGT*), 11(3):46–64, 2022

Sabyasachi Mukherjee, Sayan Mukherjee, Binh-Son Hua, Nobuyuki Umetani, and Daniel Meister. Neural Sequence Transformation. *Computer Graphics Forum* (*Proceedings of Pacific Graphics*), 2021

Daniel Meister, Adam Pospíšil, Imari Sato, and Jiří Bittner. Spatio-Temporal BRDF: Modeling and Synthesis. *Computers and Graphics*, 97:279–291, 2021

Daniel Meister, Shinji Ogaki, Carsten Benthin, Michael J. Doyle, Michael Guthe, and Jiří Bittner. A Survey on Bounding Volume Hierarchies for Ray Tracing. *Computer Graphics Forum* (*Proceedings of Eurographics*), 40(2), 2021

Daniel Meister, Jakub Bokšanský, Michael Guthe, and Jiří Bittner. On Ray Reordering Techniques for Faster GPU Ray Tracing. In *Proceedings of Symposium on Interactive 3D Graphics and Games*, 2020

Jakub Hendrich, Adam Pospíšil, Daniel Meister, and Jiří Bittner. Ray Classification for Accelerated BVH Traversal. *Computer Graphics Forum* (*Proceedings of EGSR*), 38(4):49–56, 2019

Daniel Meister and Jiří Bittner. Parallel Reinsertion for Bounding Volume Hierarchy Optimization. *Computer Graphics Forum* (*Proceedings of Eurographics*), 37(2):463–473, 2018

Daniel Meister and Jiří Bittner. Parallel Locally-Ordered Clustering for Bounding Volume Hierarchy Construction. *IEEE Transactions on Visualization and Computer Graphics*, 24(3):1345–1353, 2018

Jakub Hendrich, Daniel Meister, and Jiří Bittner. Parallel BVH Construction Using Progressive Hierarchical Refinement. *Computer Graphics Forum* (*Proceedings of Eurographics*), 36(2):487–494, 2017

Daniel Meister and Jiří Bittner. Parallel BVH Construction Using k-means Clustering. *Visual Computer* (*Proceedings of Computer Graphics International*), 32(6-8):977–987, 2016

Jiří Bittner and Daniel Meister. T-SAH: Animation Optimized Bounding Volume Hierarchies. *Computer Graphics Forum* (*Proceedings of Eurographics*), 34(2):527–536, 2015

Invited Talks

Bounding Volume Hierarchies for Ray Tracing, Huawei Tokyo Research Center 5/2020