



# Daniel Meister

daniel.meister@amd.com • meistdan.github.io

---

## 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, Python, PyTorch, Bash, Git, CMake, L<sup>A</sup>T<sub>E</sub>X

---

## 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)

---

## 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

|   |      |
|---|------|
| Wolfgang Strasser, Best Paper Award, 2nd Place              | 2024 |
| 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

SIGGRAPH Asia, Eurographics, Eurographics Symposium on Rendering (IPC), Pacific Graphics, High-Performance Graphics (IPC), ACM Transactions on Graphics, Computer Graphics Forum, Journal of Computer Graphics Techniques, Graphical Models, IEEE Computer Graphics and Applications

---

## Publications

- Daniel Meister and Takahiro Harada. Geometric Integration for Neural Control Variates. *Computer Graphics Forum (Pacific Graphics)*, 2025
- Jakub Bokšanský and Daniel Meister. Neural Visibility Cache for Real-Time Light Sampling. *Journal of Computer Graphics Techniques (JCGT)*, 14(2):1–19, 2025
- Jakub Bokšanský, Daniel Meister, and Carsten Benthin. GATE: Geometry-Aware Trained Encoding. *Proceedings of the ACM on Computer Graphics and Interactive Techniques (High-Performance Graphics)*, 2025
- Carsten Benthin, Daniel Meister, Joshua Barczak, Rohan Mehalwal, John Tsakok, and Andrew Kensler. H-PLOC: Hierarchical Parallel Locally-Ordered Clustering for Bounding Volume Hierarchy Construction. *Proceedings of the ACM on Computer Graphics and Interactive Techniques (High-Performance Graphics)*, 2024
- Daniel Meister, Paritosh Kulkarni, Aaryaman Vasishta, and Takahiro Harada. HIPRT: A Ray Tracing Framework in HIP. *Proceedings of the ACM on Computer Graphics and Interactive Techniques (High-Performance Graphics)*, 2024
- Daniel Meister, Atsushi Yoshimura, and Chih-Chen Kao. Gpu programming primitives for computer graphics. In *ACM SIGGRAPH Asia 2023 Courses*, SIGGRAPH Asia 2023, 2023
- Daniel Meister and Jiří Bittner. Performance Comparison of Bounding Volume Hierarchies for GPU Ray Tracing. *Journal of Computer Graphics Techniques (JCGT)*, 11(4):1–19, 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 (Pacific Graphics)*, 40(7), 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 (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 (Eurographics Symposium on Rendering)*, 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 (Eurographics)*, 36(2):487–494, 2017
- Daniel Meister and Jiří Bittner. Parallel BVH Construction Using  $k$ -means Clustering. *Visual Computer (Computer Graphics International)*, 32(6-8):977–987, 2016
- Jiří Bittner and Daniel Meister. T-SAH: Animation Optimized Bounding Volume Hierarchies. *Computer Graphics Forum (Eurographics)*, 34(2):527–536, 2015

---

## Patents

- Daniel Meister and Jiří Bittner. Simulated Annealing for Parallel Insertion-Based BVH Optimization, 2024. US Patent 20240202178

---

## Invited Talks

Bounding Volume Hierarchies for Ray Tracing, Huawei Tokyo Research Center

5/2020