

Aakash KT

<https://aakashkt.github.io/>

+31-653607405

✉ aakashkt0@gmail.com

Experience

Dec 2025 - **Senior Graphics Research Engineer**, *Huawei IRC*, Netherlands.

May 2026 Part of the Game Rendering Lab, with projects on identifying and resolving bottlenecks in real-time rendering of mobile games.

Work overview:

- Analyzing OpenGL calls and rendering layers with RenderDoc for possible optimizations.
- Intercepting OpenGL calls to improve the rendering fidelity or performance.
- Using Vulkan API to inject custom rendering passes in Unity 3D engine via plugins.
- GPU-CPU-NPU synchronization for ML graphics workloads like neural transparency.
- Optimizing shaders by using correct memory layout, shared memory and warp intrinsics.

Jun 2024 - **Senior Graphics Research Engineer**, *Qualcomm*, India.

Oct 2025 Part of the Graphics Research team, working on future GPU architecture research.

Work overview:

- Validate new hardware and driver features like Shader Execution Reordering (SER) and Work Graphs (WG) by building functional prototypes of the GPU stack in C++.
- Modifications across driver, compiler, RISC-V based firmware and fixed-function hardware to build the functional prototype.
- Cycle and bit accurate simulation of the functional prototype with RTL on FPGAs to get performance estimates.
- Collaboration across driver, compiler and hardware teams to bring prototype to production.
- Designing DirectX 12 driver feature bring-up and performance testing suites for functional validation and performance estimation.
- Exploring acceleration structures (BVH) and their hardware realization for improved ray-tracing efficiency. Patent filed.

Jan 2024 - **Co-Instructor, Computer Graphics Course**, *IIT Hyderabad*, India.

Mar 2024 Re-designed the course from the ground up for path tracing, including designing take-home assignments test papers, with guidance from Prof. Dr. P. J. Narayanan.

Aug 2022 - **Research Scientist Intern**, *Meta Reality Labs*, *Pittsburgh*, USA.

Jan 2023 Part of the Codec Avatars team, with a project on realistic and efficient rendering of hair.

Work overview:

- Investigating light transport theory, specifically for path-tracing of hair.
- Implementing physically based and approximation based hair rendering baselines in C++, OptiX and CUDA.
- Deriving a novel solution based on theory investigations and experimental observations of baseline methods to achieve state-of-the-art rendering capabilities.
- Designing an on-the-fly training and inference strategy with an appropriate target signal for a small neural network (deep learning) to work in combination with physically based rendering (path-tracing).
- Writing up a clear document for publication - work published in EGSR 2023.

Education

- Aug 2020 - **Ph.D in Computer Science, IIIT Hyderabad.**
May 2024 **Advisor:** Prof. Dr. P. J. Narayanan, **CGPA:** 8.0/10.0
Thesis on accelerating physically based rendering via analytic solutions and efficient neural approximations of the rendering equation.
- Aug 2015 - **BTech and MS by Research in Computer Science, IIIT Hyderabad.**
Aug 2020 **Advisor:** Prof. Dr. P. J. Narayanan, **CGPA:** 7.21/10.0
Relevant courses: Computer Graphics, Computer Vision, Digital Image Processing, Artificial Intelligence, Statistical Methods in AI, Optimization Methods, Advanced Computer Networks, Operating Systems, Software Engineering.

Selected Publications

- Eurographics 2025 **Linearly Transformed Spherical Distributions for Interactive Single Scattering with Area Lights**, *CGF, Full Paper*.
Aakash KT, Ishaan Shah, P. J. Narayanan
- SIGGRAPH Asia 2023 **Combining Resampled Importance & Projected Solid Angle Samplings for Many Area Light Rendering**, *Tech. Comm.*
Ishaan Shah*, **Aakash KT***, P. J. Narayanan
- EGSR 2023 **Accelerating Hair Rendering by Learning High-Order Scattered Radiance**, *CGF, Full Paper*.
Aakash KT, Adrian Jarabo, Carlos Aliaga, Matt Jen-Yuan Chiang, Olivier Maury, Christophe Hery, P. J. Narayanan, Giljoo Nam
- I3D 2022 **Bringing Linearly Transformed Cosines to Anisotropic GGX**, *Best Paper Award*.
Aakash KT, Eric Heitz, Jonathan Dupuy, P. J. Narayanan
- EGSR 2021 **Fast Analytic Soft Shadows from Area Lights**, *Full Paper*.
Aakash KT, Parikshit Sakurikar, P. J. Narayanan
- SIGGRAPH Asia 2019 **A Flexible Neural Renderer for Material Visualization**, *Technical Brief*.
Aakash KT, Parikshit Sakurikar, Saurabh Saini, P. J. Narayanan

Achievements & Activities

- 2022 **Best Paper Award, I3D 2022.**
Received NVIDIA RTX 3090 as the prize.
- 2022 **Tertiary Reviewer, ICGIP 2022.**
- 2021 **Tertiary Reviewer, Pacific Graphics 2021.**
- 2020 **KCIS Ph.D fellowship.**
Received the KCIS Ph.D fellowship for my research.
- 2019 **Microsoft Research Travel Grant.**
Received a travel grant from Microsoft to present my work at **SIGGRAPH Asia 2019**.