

Aakash KT

Ph.D Candidate, CVIT, IIIT Hyderabad

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Introduction

I am a final year Ph.D candidate at CVIT, IIIT Hyderabad, supervised by Dr. P. J. Narayanan. My research involves playing around with the light transport equation towards real-time performance, differentiable rendering and neural rendering.

During my Ph.D, I have had the pleasure of collaborating with Eric Heitz & Jonathan Dupuy during their time at Unity Research, Grenoble. I have also been fortunate to have worked as a Research Scientist Intern at Meta Reality Labs in Pittsburgh, with Giljoo Nam.

Experience

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

Jan 2023 **Manager:** Dr. Giljoo Nam

Working towards accelerating photorealistic rendering of human hair with multiple scattering.

Other team members: Matt Jen-Yuan Chiang, Olivier Maury, Christoph Hery, Carlos Aliaga & Adrian Jarabo

2017 - 2020 **Research Assistant, CVIT, IIIT Hyderabad.**

Advisor: Dr. P. J. Narayanan

Worked on Neural Rendering for specific usecases and appearance editing from captured photographs. I also worked on depth estimation from focus images and explored deep generative models for domain adaptation.

2017 summer **SDE intern, Linux Foundation.**

I worked on the JOID installer for deploying SDN (Software-defined networks) solutions. Specifically, my work helped automate the deployment of Kubernetes with OVN as the SDN. I also worked on automating the deployment of Clearwater vIMS on Kubernetes. I was invited to present my work at the OPNFV Plugfest at **Intel, Portland, USA.**

Education

2020 - 2024 **Ph.D in Computer Science, IIIT Hyderabad.**

(Expected) **Advisor:** Prof. Dr. P. J. Narayanan, **CGPA:** 8.0/10.0

Working on accelerating physically based rendering via analytic solutions and efficient neural approximations of the rendering equation.

2015 - 2020 **BTech and MS by Research in Computer Science, IIIT Hyderabad.**

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.

Publications

- 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
- ICVGIP 2022 **Real-Time Rendering of Arbitrary Surface Geometries using Learnt Transfer**, *Full Paper*.
Dhawal Sirikonda, **Aakash KT**, P. J. Narayanan
- HPG 2022 **Learnt Transfer for Surface Geometries**, *Poster*.
Dhawal Sirikonda, **Aakash KT**, P. J. Narayanan
- EG 2022 **Transfer Textures for Fast Precomputed Radiance Transfer**, *Poster*.
Dhawal Sirikonda, **Aakash KT**, P. J. Narayanan
- EGSR 2021 **Fast Analytic Soft Shadows from Area Lights**, *Full Paper*.
Aakash KT, Parikshit Sakurikar, P. J. Narayanan
- ICVGIP 2021 **Neural View Synthesis with Appearance Editing from Unstructured Images**, *Full Paper*.
Pulkit Gera, **Aakash KT**, Dhawal Sirikonda, 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, ICVGIP 2022**.
- 2021 **Tertiary Reviewer, Pacific Graphics 2021**.
- 2020 **KCIS Ph.D fellowship**.
Received the prestigious 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** in Brisbane, Australia.
- 2019-2020 **Web Chair, CODS-COMAD 2020**.

2018 **CANSAT competition, NASA, Texas, USA.**

Participated in the CANSAT competition in which teams build a payload that is released from a height of thousand meters. The task is to perform various maneuvers and get back to land, all without damaging an egg kept inside the payload. **Secured a world rank of 24 as co-team leader.**

Selected Projects

2019-2020 **Single Image SLAM with geometry priors, Prof. Madhava Krishna.**

Assisted work to improve Single Image SLAM with geometry information, using neural rendering and inverse rendering. This work was later published at a **CVPR 2020** workshop.

2017 **Denoising Using Recurrent Autoencoder, Prof. PJN.**

Implemented a **SIGGRAPH 2017** paper, as part of a research project. Used **PyTorch** framework to implement the Recurrent Neural Network. Code available on [Github](#).

2017 **MagicBrix: 3D game in OpenGL, Prof. Avinash Sharma.**

Replica of the popular game Bloxors, with full 3D textures and lighting. Developed using **C++, OpenGL**

Softwares & Programming Languages

Softwares **OptiX, OpenGL, Mitsuba 2, PBRT, Blender 3D, Substance Painter, Unity 3D.**
Languages **C++, C, Python.**