Ishaan Shah

E-mail: ishaan.shah@research.iiit.ac.in ✳ *GitHub:* ishaanshah
Website: ishaanshah.xyz ✳ *LinkedIn:* ishaan-shah

Introduction

I am a MS graduate from IIIT Hyderabad. During my Master's, I was supervised by Prof. P. J. Naryanan and co-advised by Dr. Adrien Gruson and Dr. Luis Gamboa. My research revolves around light transport theory and material appearance modeling. Specifically, I am interested in combining stochastic and analytic methods to improve rendering algorithms. Check out my publications to get to know more about my research.

Work experience

Research Assistant   *IIIT-H*
Advisor: Prof. P.J. Narayanan   *July 2021 - May 2024*

- Worked on application of analytical and neural methods for solving complex light transport.
- Was involved in other publications related to Gaussian Splatting and Neural Fields.

Teaching Assistant   *IIIT-H*
Course: Computer Graphics   *January 2024 - February 2024*

- Helped in making assignments and setting examinations.

Research Intern   *IBM Research*
Manager: Dr. Prathiba Moogi   *April 2021 - July 2021*

- Worked on the OpenShift observability stack to find its shortcomings and developed solutions to improve them.
- Was involved in authoring a patent, which was granted by the US Patent Office.

Student System Administrator   *Hyderabad*
IIIT-H   *March 2021 - December 2023*

- Responsibilities include managing, troubleshooting, maintaining, and improving college IT & network infrastructure.
- Migrated the gateway server and edge routers to PfSense from a Linux-based setup.
- Improved the monitoring stack by migrating from Nagios to Prometheus + Grafana.
- Helped in migration of internal nameserver from BIND to PowerDNS.

Summer Intern   *MetaBrainz Foundation*
GSoC 2020   *May 2020 - August 2020*

- Worked on ListenBrainz, a website that allows users to track their music listening history and get useful recommendations and statistics.
- My project involved creating statistics and visualizations for the users and the community.
- Read more about the project in this blog

Education

M. S. in Computer Science   *IIIT-H*
Advisor: Prof. P.J. Naraynan
Co-Advisor: Dr. Adrien Gruson
Co-Advisor: Dr. Luis E. Gamboa   *2023-2024*

Thesis topic: Working on application of analytical methods for enhancing the convergence speed and appearance modeling in light transport simulations.

B. Tech in Computer Science *IIIT-H*
CGPA: 8.9/10 *2019-2023*
Relevant courses: Computer Graphics, Advanced Graphics: AR & VR, Digital Image Processing, Medical Image Analysis, Statistical Methods in AI.

Publications

- **Neural Histogram-Based Glint Rendering of Surfaces With Spatially Varying Roughness**
  Ishaan Shah, Luis E. Gamboa, Adrien Gruson, P. J. Narayanan
  EGSR 2024 (CGF)

- **MANUS: Markerless Grasp Capture using Articulated 3D Gaussians**
  Chandradeep Pokhariya, Ishaan Shah*, Angela Xing*, Zekun Li, Kefan Chen, Avinash Sharma, Srinath Sridhar
  CVPR 2024

- **DiVa-360: The Dynamic Visual Dataset for Immersive Neural Fields**
  Cheng-You Lu*, Peisen Zhou*, Angela Xing*, Chandradeep Pokhariya, Arnab Dey, Ishaan Shah, Rugved Mavidipalli, Dylan Hu, Andrew Comport, Kefan Chen Srinath Sridhar
  CVPR 2024

- **Combining Resampled Importance & Projected Solid Angle Samplings for Many Area Light Rendering**
  Ishaan Shah*, Aakash KT*, P. J. Narayanan
  SIGGRAPH Asia 2023 (Technical Communications)

- **Automated tree generation using grammar & particle system**
  Aryamaan Jain, Jyoti Sunkara, Ishaan Shah, K. S. Rajan
  ICVGIP 2021

- **Application event logging augmentation**
  Ishaan Shah, Seema Nagar, Pooja Aggarwal, Pratibha Moogi
  US Patent

Technical skills

Programing Languages	C/C++, CUDA, Python, Javascript
Frameworks	Vulkan, OpenGL
Tools	Git, GNU/Linux, LaTeX

Project

Ray Tracer
GitHub *2022*

- A minimal GPU accelerated ray tracer written in OpenGL.
- Features include next-event estimation, GGX BSDF, BVH acceleration, and more.

HPG Student Competition
GitHub *2022*

- Optimized the given ray tracer code to reduce variance and increase speed.

- Applied various optimizations ranging from better light sampling to faster intersection tests.

Skye Force
GitHub *2022*

- A 3D space shooter game built using WebGL.

Awards and Achievements

- Deans List Awardee
- AIR 3,044 in JEE Advanced 2019
- AIR 3,734 in JEE Mains 2019