

Dhawal Sirikonda

Rendering and Imaging Science Lab

ECSC 020

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🌐 <http://dhawal.xyz>

RESEARCH INTERESTS

I am Dhawal, a Ph.D. student at Dartmouth College in Hanover, NH, working with [Prof. Adithya Pediredla](#) on developing novel imaging systems. My research focuses on fast imaging by integrating multiple sensors and ultrafast lensing (Acousto-Optic). Insights from ultrafast lensing contribute to innovative solutions in applications such as high-speed scanning ($1000\times$ faster than SOTA) and high-speed under-water communication ($600\times$ faster than SOTA). Prior to my Ph.D., I completed my Master's at IIIT-Hyderabad, where I worked with [Prof. P.J. Narayanan](#) on enhancing graphics and 3D vision pipelines with machine learning.

EDUCATION

Sep 2023 -
present

Ph.D.

Rendering and Imaging Science Lab (RISC-Lab),
Dartmouth College, Hanover, New Hampshire, United States
Advisor: Adithya Pediredla

Jan 2020 - May
2023

M.S., Computer Science

Center for Visual Information Technology (CVIT), IIIT-Hyderabad, India
Advisor: Prof. P. J. Narayanan
Thesis: Real-time Rendering of Arbitrary Surface Geometries
using Precomputed Radiance Transfer

Sep 2019 - Dec
2019

M.Tech, Computer Science (discont.)

(discontinued and took up Research Program), IIIT-Hyderabad, India

2014 - 2018

B.Tech, Computer Science

JNTUK-University College of Engineering Vizianagaram, India

RESEARCH

Atul Rohit Agarwal*, **Dhawal Sirikonda***, Charles Carver, Ziang Ren, Dinithi Silva-Sassaman, Atharv Agashe, Alberto Quattrini Li, Xia Zhou and Adithya Pediredla, “[Underwater Optical Backscatter Communications using Acousto-Optic Beam Steering](#)”, SIGGRAPH Asia ACM ToG, 2025, (* \equiv Equal Contribution)

Dhawal Sirikonda, Praneeth Chakravarthula, Ioannis Gkioulekas and Adithya Pediredla “[Structured Light with a million light planes a second](#)”, ICCP, 2025(PAMI special issue)

Rahul Goel*, **Dhawal Sirikonda***, Saurabh Saini, and P. J. Narayanan, “[Interactive Segmentation of Radiance Fields](#)”, CVPR, 2023, (* \equiv Equal Contribution)

Vinayak Gupta, Rahul Goel, **Dhawal Sirikonda**, and P. J. Narayanan, “[GSN: Generalisable Segmentation in Neural Radiance Field](#)”, AAI, 2024,

Dhawal Sirikonda, Aakash KT, and P. J. Narayanan, “[Real-time Rendering of Arbitrary Surface Geometries using Learnt Transfer](#)”, ICVGIP, 2022

Rahul Goel*, **Dhawal Sirikonda***, Saurabh Saini, and P. J. Narayanan, “[StyleTRF: Stylizing Tensorial Radiance Fields](#)”, ICVGIP, 2022, (* \equiv Equal Contribution)

Dhawal Sirikonda, Aakash KT and and P. J. Narayanan, “[Learnt Transfer for Surface Geometries](#)”, HPG-Posters(High Performance Graphics), 2022

Dhawal Sirikonda, Aakash KT and and P. J. Narayanan, “[Transfer Textures for Fast Precomputed Radiance Transfer](#)”, EG-Posters(EuroGraphics), 2022

Pulkit Gera, Aakash KT, **Dhawal Sirikonda** and P. J. Narayanan, “[Neural View Synthesis with Appearance Editing from Unstructured Images](#)”, ICVGIP, 2021

EXPERIENCE

Sep '23 - Jan '25 Dartmouth College	PhD Researcher - Rendering and Imaging Science Lab Working on the intersection of acousto-optic imaging applications, including fast scanning, data communications, and acoustic lensing.
Jan '20 - May '23 IIIT-Hyderabad	Research Assistant - Center for Visual Information Technology Worked on collaborative projects, supervised undergraduate and dual degree students, and pursued independent research topics and solutions. Initial work focused on differentiable rendering pipelines to recover surface properties from multiview data (using Mitsuba 2).
Sep '22 - Present IIIT-Hyderabad, Dartmouth College	Teaching Assistant / Mentor Served as TA for graduate and undergraduate courses including Computational Photography (Dartmouth, Spring 2025), Computer Vision (Dartmouth, Winter 2024), Advanced Graphics AR/VR (IIIT-H, Fall 2022), and Computer Graphics (IIIT-H, Spring 2021). Also mentored industry professionals in AIML projects via Talentsprint.

TECHNICAL/ACADEMIC SKILLS

Programming:	Python, C/C++
Libraries/API:	Mitsuba2, CUDA, OptiX, OpenGL, PyTorch
Academic Core Courses:	Advance Graphics AR and VR, Computer Vision, Statistical Methods in AI
Other Courses:	Database Management Systems, Linear Algebra, Operating Systems

ACADEMIC PROJECTS

Acousto-Optic Structured Light 3D Scanning – Designed and implemented an acousto-optic beam steering system capable of generating over one million light planes per second for ultrafast 3D scanning.

Acousto-Optic Optical Communication – Built an underwater optical backscatter communication system using acousto-optic beam steering, with the first prototype achieving 1 Mbit/s and a modified off-the-shelf AOM reaching 13 Mbit/s.

Object Retrieval from Radiance Fields – Built an interactive object and sub-scene retrieval framework for radiance fields by growing high-confidence content to capture fine details.

Real-time Rendering of Implicit Surfaces with Precomputed Radiance Transfer – Implemented a fast functional surface representation supporting glossy and diffuse materials using spherical harmonics PRT.

Appearance Editing and Novel View Synthesis – Extended neural novel-view synthesis pipelines with disentangled appearance control via differentiable rendering.

ACHIEVEMENTS

Enlisted in Roll of Honors, [Academically 2nd in the batch of 2014-2018, JNTUK-UCEV](#)
Certified Programmer in Building Systems and Applications, MissionRnD

2018
2016-2017