Dhawal Sirikonda

Rendering and Imaging Science Lab
ECSC 020
Dartmouth College, Hanover, USA, 03766

☎ + +1 (603)-276-8632
✉ dhawal.sirikonda.gr@dartmouth.edu
http://dhawal.xyz

Research

I work with Prof. Adithya Pediredla on novel imaging systems. My research focuses on fast imaging by combining multiple sensors with ultrafast acousto-optic lensing, enabling applications such as high-speed scanning ($1000\times$ faster than SOTA) and underwater optical communication ($600\times$ faster than SOTA). Prior to my Ph.D., I completed an M.S. at IIIT–Hyderabad, where I worked with Prof. P. J. Narayanan on graphics and 3D vision pipelines powered by machine learning.

Education

Sep '23 – Present	**Ph.D.** — Rendering and Imaging Science Lab (RISC-Lab), Dartmouth College, Hanover, NH, USA Advisor: Prof. Adithya Pediredla	–
Jan '20 – May '23	**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	8.67/10
Aug '19 – Dec '19	**M.Tech., Computer Science (discontinued)** — IIIT-Hyderabad, India Discontinued; moved to Research Program	–
2014 – 2018	**B.Tech., Computer Science** — JNTUK — University College of Engineering, Vizianagaram, India	81.85/100

Research — (selected papers)

Underwater Optical Backscatter Communications using Acousto-Optic Beam Steering — SIGGRAPH-Asia(ToG), 2025
Atul Rohit Agarwal*, **Dhawal Sirikonda***, Atharv Agashe, Ziang Ren, Dinithi Silva-Sassaman, Charles Carver, Alberto Quattrini Li, Xia Zhou, and Adithya Pediredla (*≡**joint first author**)

Structured Light with a million light planes a second — ICCP & TPAMI, 2025
Dhawal Sirikonda, Praneeth Chakravarthula, Ioannis Gkioulekas, and Adithya Pediredla

GSN: Generalisable Segmentation in Neural Radiance Field — AAAI, 2024
Vinayak Gupta, Rahul Goel, **Dhawal Sirikonda**, and P. J. Narayanan

Interactive Segmentation of Radiance Fields — CVPR, 2023
Rahul Goel*, **Dhawal Sirikonda***, Saurabh Saini, and P. J. Narayanan (*≡**joint first author**)

Real-time Rendering of Arbitrary Surface Geometries using Learnt Transfer — ICVGIP, 2022
Dhawal Sirikonda, Aakash KT, and P. J. Narayanan

StyleTRF: Stylizing Tensorial Radiance Fields — ICVGIP, 2022
Rahul Goel*, **Dhawal Sirikonda***, Saurabh Saini, and P. J. Narayanan (*≡**joint first author**)

Experience

Sep '23 – Sept '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 AI/ML projects via Talentsprint.

Technical/Academic Skills

Programming:	Python, C/C++, Matlab
Libraries/API:	Mitsuba2, CUDA, OptiX, OpenGL, PyTorch
Academic Core Courses:	Computational Imaging, Rendering, 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; first prototype reached 1 Mbit/s and a modified off-the-shelf AOM achieved 13 Mbit/s.

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

Real-time Rendering of Implicit Surfaces with Precomputed Radiance Transfer – 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

Reviewing: AAAI 2026, ICVGIP 2023	2023–Present
Enlisted in Roll of Honors: Academically 2nd in the 2014–2018 batch, JNTUK–UCEV	2018
Certified Programmer in Building Systems and Applications, MissionRnD	2016–2017

Mentoring

Dartmouth College	Ava Carlson	Undergraduate Student	2025–Present
Oakton High School	Saurish Gali	Junior High School Student	2025
Dartmouth College	Atul R. Agarwal	Graduate Student	2024–2025
Dartmouth College	Atharv Agashe	Undergraduate Student	2024–2025
IIIT–H	Rahul Goel	Undergraduate Student	2022–2023