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 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× faster than SOTA) and high-speed under-water communication (600× 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

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

Interactive Segmentation of Radiance Fields, Rahul Goel*, **Dhawal Sirikonda***, Saurabh Saini, and P. J. Narayanan, CVPR, 2023 (* ≡ Equal Contribution)

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

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

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

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

Transfer Textures for Fast Precomputed Radiance Transfer, **Dhawal Sirikonda**, Aakash KT, and P. J. Narayanan, EG-Posters (EuroGraphics), 2022

Neural View Synthesis with Appearance Editing from Unstructured Images, Pulkit Gera, Aakash KT, **Dhawal Sirikonda**, and P. J. Narayanan, ICVGIP, 2021

Appearance Editing with Free-viewpoint Neural Rendering, Pulkit Gera, Aakash KT, **Dhawal Sirikonda**, Parikshit Sakurikar, and P. J. Narayanan, arXiv, 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	2018
Certified Programmer in Building Systems and Applications, MissionRnD	2016-2017