

Dhawal Sirikonda

Rendering and Imaging Science Lab
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RESEARCH

I work with [Prof. Adithya Pediredla](#) on ultra-fast, inexpensive LiDAR and computational imaging systems. I design sensing architectures enabling MHz-rate depth measurements in ToF sensors. In parallel, I explore multi-sensor imaging and acousto-optic lensing for high-speed scanning (1000× faster than SOTA) and underwater optical communication (600× faster than SOTA), leveraging learning-based and physics-driven methods. Prior to my Ph.D., I completed an M.S. at IIIT-Hyderabad with [Prof. P. J. Narayanan](#), working on ML-driven graphics and 3D vision systems.

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	8.67/10
	Advisor: Prof. P. J. Narayanan · Thesis: Real-time Rendering of Arbitrary Surface Geometries using Precomputed Radiance Transfer	
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**)

PATENTS

Underwater Optical Backscatter Communication Using Acousto-Optic Beam Steering, U.S. Patent App. 63/913,085, Nov. 6, 2025

Event-Enhanced Histopathology Apparatus, U.S. Patent App. 63/837,253, Jul. 2, 2025

EXPERIENCE

Sep '23 – Sept '25	Dartmouth College <i>PhD Researcher – Rendering and Imaging Science Lab</i> – Research on acousto-optic imaging for ultra-fast scanning, optical communication, and acoustic lensing.
Jan '20 – May '23	IIIT-Hyderabad <i>Research Assistant – Center for Visual Information Technology</i> – Conducted research on differentiable rendering and multi-view surface reconstruction (Mitsuba 2), while supervising undergraduate and dual-degree students.
Sep '22 – Present	IIIT-Hyderabad, Dartmouth College <i>Teaching Assistant / Mentor</i> – TA for Computational Photography (Dartmouth), Computer Vision (Dartmouth), Advanced Graphics AR/VR (IIIT-H), and Computer Graphics (IIIT-H); mentored industry professionals in AI/ML projects via Talentsprint.

TECHNICAL SKILLS

Programming:	Python, C/C++, MATLAB
Libraries/Frameworks:	Mitsuba2, CUDA, OptiX, OpenGL, PyTorch
Coursework:	Computational Imaging, Rendering, Advanced Graphics (AR/VR), Computer Vision, Statistical Methods in AI
Other:	Database Systems, Linear Algebra, Operating Systems

ACADEMIC PROJECTS

- Ultra-Fast Low-Cost LiDAR* – Built an inexpensive LiDAR system using commodity communication hardware to achieve MHz-rate depth sensing for real-time applications.
- 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, CVPR 2026, SIGGRAPH 2026	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