

# Dhawal Sirikonda

Rendering and Imaging Science Lab  
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## 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	<b>Ph.D. — Rendering and Imaging Science Lab (RISC-Lab), Dartmouth College, Hanover, NH, USA</b>	—
	Advisor: Prof. Adithya Pediredla	
Jan '20 – May '23	<b>M.S., Computer Science — Center for Visual Information Technology (CVIT), IIIT-Hyderabad, India</b>	8.67/10
	Advisor: Prof. P. J. Narayanan · Thesis: Real-time Rendering of Arbitrary Surface Geometries using Precomputed Radiance Transfer	
Aug '19 – Dec '19	<b>M.Tech., Computer Science (discontinued) — IIIT-Hyderabad, India</b>	—
	Discontinued; moved to Research Program	
2014 – 2018	<b>B.Tech., Computer Science — JNTUK — University College of Engineering, Vizianagaram, India</b>	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, Diniti Silva-Sassaman, Charles Carver, Alberto Quattrini Li, Xia Zhou, and Adithya Pediredla (\* $\equiv$ 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 (\* $\equiv$ 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 (\* $\equiv$ joint first author)

## EXPERIENCE

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Sep '23 – Sept '25	<b>Dartmouth College</b> <i>PhD Researcher — Rendering and Imaging Science Lab</i> — Working on the intersection of acousto-optic imaging applications, including fast scanning, data communications, and acoustic lensing.
Jan '20 – May '23	<b>IIT-Hyderabad</b> <i>Research Assistant — Center for Visual Information Technology</i> — 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	<b>IIT-Hyderabad, Dartmouth College</b> <i>Teaching Assistant / Mentor</i> — Served as TA for graduate and undergraduate courses including Computational Photography (Dartmouth, Spring 2025), Computer Vision (Dartmouth, Winter 2024), Advanced Graphics AR/VR (IIT-H, Fall 2022), and Computer Graphics (IIT-H, Spring 2021). Also mentored industry professionals in AI/ML projects via Talentsprint.

## TECHNICAL/Academic SKILLS

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

## ACADEMIC PROJECTS

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<i>Acousto-Optic Structured Light 3D Scanning</i> — Designed and implemented an acousto-optic beam-steering system capable of generating over one million light planes per second for ultrafast 3D scanning.
<i>Acousto-Optic Optical Communication</i> — 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.
<i>Object Retrieval from Radiance Fields</i> — Interactive object and sub-scene retrieval for radiance fields by growing high-confidence content to capture fine details.
<i>Real-time Rendering of Implicit Surfaces with Precomputed Radiance Transfer</i> — Fast functional surface representation supporting glossy and diffuse materials using spherical-harmonics PRT.
<i>Appearance Editing and Novel View Synthesis</i> — Extended neural novel-view synthesis pipelines with disentangled appearance control via differentiable rendering.

## ACHIEVEMENTS

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<b>Reviewing:</b> AAAI 2026, ICGVIP 2023	2023–Present
<b>Enlisted in Roll of Honors:</b> <a href="#">Academically 2nd in the 2014–2018 batch, JNTUK–UCEV</a>	2018
<b>Certified Programmer in Building Systems and Applications</b> , MissionRnD	2016–2017

## MENTORING

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<b>Dartmouth College</b>	Ava Carlson	Undergraduate Student	2025–Present
<b>Oakton High School</b>	Saurish Gali	Junior High School Student	2025
<b>Dartmouth College</b>	Atul R. Agarwal	Graduate Student	2024–2025
<b>Dartmouth College</b>	Atharv Agashe	Undergraduate Student	2024–2025
<b>IIT-H</b>	<a href="#">Rahul Goel</a>	Undergraduate Student	2022–2023