RAHUL SAJNANI

Website @ rahul_sajnani@brown.edu in rahul-sajnani /RahulSajnani Google Scholar

EDUCATION

Ph.D. in Computer Science

Brown University

2022-present | Rhode Island, USA

CGPA: 4.0/4.0. Working on Understanding and Manipulating Emergent Properties of Foundational Model for 3D Scene & Object Understanding.

Bachelor of Technology and Masters of Science by Research, Electronics and Communication Engineering

International Institute of Information Technology (IIIT-H)

2017 – 2022 | Hyderabad, India

CGPA: 9.1/10. Worked on Monocular SLAM and Weakly Supervised Canonicalization of Objects for Robot Perception.

EXPERIENCE

Research Scientist (Intern & Part-Time)

Amazon Robotics, USA

2023 – 2024 | North Reading, Massachusetts, USA

- Baked 3D geometry in text-to-image diffusion models using GeoDiffuser for geometry editing without any fine-tuning with Jeoren Vanbaar , Kapil Katyal , and Prof. Srinath Sridhar . | PyTorch, PyTorch3D
- Improved item identification of occluded items by 4% for targeted robot picking using diffusion inpainting. Trained diffusion model to generate real-world tote images from layouts and text prompts.
- Experimented with abstract textual-inversion tokens for novel view synthesis and re-posing of objects.

Research Intern (Remote)

Brown Visual Computing , Brown University, USA

2021 – 2022 | Hyderabad, India

- Worked on pose-equivariant architectures for unsupervised canonicalization of full and partial 3D point clouds with Prof. Srinath Sridhar and Prof. Leonidas J. Guibas . See ConDor! | PyTorch, Tensorflow

Research Assistant

Robotics Research Center (RRC)

2019 – 2022 | Hyderabad, India

- Designed, implemented, and brainstormed on weakly supervised dense canonicalization to eradicate the need for ground-truth canonical maps and reduce sim2real gap for object pose-estimation. | Hydra, PyTorch, Open3D
- Designed and implemented the perception stack for Self Driving Car | Raspberry Pi, ROS
- Worked on ego trajectory scaling in Dynamic Monocular SLAM with Prof. Madhav Krishna . | PyTorch

Robotics Summer School Head Organizer

Robotics Research Center (RRC)

Summer 2021 | Hyderabad, India

- Planned and scheduled the Robotics Research Center Summer School for teaching lab entrants about Robotics and Computer Vision.
- Taught concepts such as Multi-View Geometry, Transformations, Camera Modeling, Optimization, and Remote Server Usage basics.

FEATURED PUBLICATIONS

1. Rahul Sajnani et al.: *GeoDiffuser: Geometry-Based Image Editing with Diffusion Models*. IEEE Winter Conference on Applications of Computer Vision (**IEEE WACV** 2025).
2. Rohith Agaram et al.: *Canonical Fields: Self-Supervised Learning of Pose-Canonicalized Neural Fields*. IEEE Conference on Computer Vision and Pattern Recognition (**IEEE CVPR** 2023 (Highlight)).
3. Qiuhong Anna Wei et al.: *LEGO-Net: Learning Regular Rearrangements of Objects in Rooms*. IEEE Conference on Computer Vision and Pattern Recognition (**IEEE CVPR** 2023).
4. Rahul Sajnani et al.: *ConDor: Self-Supervised Canonicalization of 3D Pose for Partial Shapes*. IEEE Conference on Computer Vision and Pattern Recognition (**IEEE CVPR** 2022).
5. Rahul Sajnani et al.: *DRACO: Weakly Supervised Dense Reconstruction And Canonicalization of Objects*.IEEE International Conference on Robotics and Automation (**IEEE ICRA** 2021).
6. Gokul B. Nair et al.: *Multi-object Monocular SLAM for Dynamic Environments*. IEEE Intelligent Vehicles Symposium (**IEEE IV** 2020).

LEADERSHIP

- Team Lead & Advisor. The Dance Crew, IIIT-H. 2019-22.
- Founder & Coordinator. Skateboarding Club, IIIT-H. 2021-22.
- Head System Administrator. RRC. 2021-22.
- House Captain. Aakash House, IIIT-H. 2020-21.
- Vice President Cultural (Arts). DPS Sharjah. 2016-17.

ACHIEVEMENTS

- Gold Medal (IIIT-H): Highest CGPA in the batch.
- Research Award (IIIT-H): Awarded to top 20 research students in the institute.
- Academic Trophy (DPS Sharjah): Awarded to top 20 students in Computer Science at DPS Sharjah.

SERVICE

- Reviewer for CVPR, ICCV, ECCV, ICLR, TVCG, T-PAMI, ACCV.