

Sehajdeep Singh

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Sydney, Australia

I am a Master of Computer Science (Advanced Entry) student at University of Sydney. My research interest lies in 3D, Computer Vision and Diffusion models. I have academic research experience at IIIT-Delhi as well as 3+ years of industry AI development at HP Inc. I am particularly interested in exploring how generative models capture data distribution entropy and investigating whether explicit entropy modeling can improve cross-modal understanding.

EXPERIENCE

- **IIIT-Delhi** July 2024 - July 2025
Research Associate Delhi, India
 - 3D Vision Research.
 - Novel View Synthesis using diffusion models under [Prof. A V Subramanyam](#).
 - Work resulted in a first-author paper under review at a top-tier AI conference.
- **HP Inc** Bangalore, India
Software Engineer 2 Dec 2022 – July 2024
 - Developed Dockerized Full Stack solutions.
 - React, MongoDB, Docker, FastAPI stack.
 - Delivered a 30–40% increase in AI-driven automated testing throughput.
- *Software Engineer 1* July 2021 – Dec 2022
 - Developed and enabled test teams with a novel CV based UI testing tool.
 - Vision+Language - contextual caption generation for UI icons.
- *Research Intern* Feb 2021 - July 2021
 - Computer Vision Research and Development.
 - Developed CV based intelligent UI Testing tool for HP desktop apps and web applications.

EDUCATION

- **University of Sydney** Aug 2025 - Aug 2027
Master of Computer Science (Advanced Entry) Sydney, Australia
- **Manipal Institute of Technology** July 2017 - July 2021
B.Tech in Computer Science Manipal, India

PUBLICATIONS

- [1] **Sehajdeep Singh**, A V Subramanyam. "Novel View Synthesis using DDIM Inversion." arXiv preprint arXiv:2508.10688, 2025.

PROJECTS

- **Latent Diffusion Model with Perceptual Loss** Jan 2024 - Mar 2024
 - Built Latent Diffusion models to generate Church images at reduced training times.
 - Trained ImageNet latent space classifier to add perceptual loss.
 - Outcome : Increased visual fidelity for the object with addition of perceptual loss.
 - Project Blog : [Link](#).
- **Dockerized Imaging Ops** Feb 2023-Jan 2024
 - All-in-one dockerized framework/web app.
 - Streamlined dataset management, version control, and test execution.
 - Platform agnostic.

SKILLS

- **Tools and Languages** Python, JavaScript, C++, \LaTeX , Git
- **FrameWork** Pytorch, Tensorflow, FastAI
- **Web Development** FastAPI, React, MongoDB
- **Communication** English, Hindi, Punjabi

BLOG POSTS

Homepage: <https://sehajsasan.github.io/sehaj-notepad/>