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 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/