Ashish Sinha

ashishsinha108@gmail.com | HomePage | LinkedIn | GitHub | Google Scholar

EDUCATION

Simon Fraser University	Nov. 2021 – Jun. 2024
*Master's in Computer Science	Advisor(s): Prof. Ghassan Hamarneh*	*Vancouver, Canada*
Indian Institute of Technology (IIT) Roorkee	Jul. 2016 – Jul. 2020
*Bachelor's in Materials Science	Advisor(s): Prof. K.S. Suresh*	*Roorkee, India*

EXPERIENCE

Machine Learning Researcher — Jul. 2024 – Present
Noah's Ark Lab, Huawei Technologies | Advisor: Dr. Binbin Xu — *Toronto, Canada*

- Trained multi-model foundation models (FMs) for object detection of small tableware objects, achieving improvement by 32% in mAP
- Developed a near real-time zero-shot 6DOF pose estimation method using 2D/3D foundation models
- Co-developed a training-free, uncertainity-guided, object reconstruction and 6D pose estimation method using 3D diffusion priors achieving state-of-the-art performance. Accepted in **CoRL** 2025
- Trained/Finetuned vision language actions models (VLAs) in simulation for robotic manipulation and deployed on real robots (AgileX Piper and Franka)

Graduate Research Assistant — Nov. 2021 – Aug 2024
Simon Fraser University | Advisor: Prof. Ghassan Hamarneh — *Vancouver, Canada*

- Designed a novel diffusion architecture for generating anatomical trees using neural fields. Accepted at **MICCAI**.
- Developed a differential rendering framework to generate large-scale synthetic clinical data. Accepted in **MedIA**.

Research Intern — Dec. 2020 – Aug. 2021
GIST Vision Lab | Advisor: Prof. Jonghyun Choi — *South Korea (remote)*

- Developed a novel algorithm for multi-target point cloud domain adaptation achieving SOTA classification performance. Accepted at **CVPR** (W).

Research Engineer Intern — Jun. 2019 – Aug. 2019
Preferred Networks | Advisors: Dr. Yohei Sugawara & Dr. Yuichiro Hirano — *Tokyo, Japan*

- Developed a novel vector quantization (VQ)-based Guided Attention GANs for CT reconstruction from biplanar DRRs. Accepted at **NeurIPS** (W).

Research Intern — Mar. 2019 – Jul. 2019
ETS Montreal | Advisor: Prof. Jose Dolz — *Canada (remote)*

- Designed a novel refinement-based parallel attention module for Semantic Segmentation of internal organs achieving SOTA Dice scores. Accepted in **JBHI**.

SELECTED PUBLICATIONS (GOOGLE SCHOLAR)

- "*UnPose*: Uncertainty-Guided Diffusion Priors for Zero-Shot Pose Estimation", Z. Jiang, **A. Sinha**, T. Cao, Y. Ren, B. Liu, B. Xu. CoRL, 2025.
- "*TrIND*: Representing Anatomical Trees by Denoising Diffusion of Implicit Neural Fields", **A. Sinha**, G. Hamarneh. MICCAI, 2024.
- "*DermSynth3D*: Synthesis of *in-the-wild* Annotated Dermatology Images", **A. Sinha**, J. Kawahara, A. Pakzad,···, G. Hamarneh. MedIA, 2024.
- "*MEnsA*: Mixup Ensemble Average for Multi Target Domain Adaptation on Point Clouds", **A. Sinha**, J. Choi. CVPR (W), 2023.
- "Multi-Scale Self-Guided Attention Networks for Medical Image Segmentation", **A. Sinha**, J. Dolz. JBHI, 2020.
- "*GAGAN*: CT Reconstruction from Biplanar DRRs using GAN with Attention", **A. Sinha**, Y. Hirano, Y. Sugawara. NeurIPS (W), 2019.

SKILLS

Programming Languages: Python, BASH, C++, MATLAB
Developer Tools: VIM, Git, GitHub, GitLab, VS Code, Docker, Singularity, SLURM, Blender, Tableau
Libraries: PyTorch, NumPy, Pytorch3D, Open3D, Diffusers, Weights & Biases, Gradio, JAX, Taichi, Chainer, Keras