Ashish Sinha

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HomePage | LinkedIn | GitHub | Google Scholar | Need O1/EB1/EB2 visa sponsorship in US

Education

Simon Fraser University Nov. 2021 – Jun. 2024
Master's in Computer Science | Advisor(s): Prof. Ghassan Hamarneh *Burnaby, BC, Canada*

Indian Institute of Technology Roorkee Jul. 2016 – Jul. 2020
Bachelor's in Materials Science | Advisor(s): Prof. K.S. Suresh *Roorkee, India*

Research Experience

Machine Learning Researcher Jul. 2024 – Present
Huawei Technologies, Noah's Ark Lab | Advisor: Tongtong Cao *Toronto, ON, Canada*

- Enhanced open-vocabulary object detection of small tableware objects by 32% via scalable training of vision foundation models (FM) for robotic manipulation.
- Designed a zero-shot 6D pose estimation method using 2D/3D FMs running at 4 FPS.[Under Review (CORL)]
- Developed and deployed sim-to-real motion planning pipelines for robotic manipulation using vision-language action models. [Patent pending]

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

- Designed a novel diffusion-based algorithm for generating anatomical trees using neural fields. [MICCAI]
- Developed a differential rendering framework to generate large-scale synthetic clinical data. [MedIA]
- Worked on developing an ethics framework for medical image synthesis. [Under Review (MedIA)]

Research Intern Dec. 2020 – Aug. 2021
GIST Vision Lab | Advisor: Jonghyun Choi *Gwangjou, South Korea*

- Developed a novel algorithm for multi-target point cloud domain adaptation. [CVPR (W)]

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

- Developed a novel VQ-Guided Attention for GANs for CT reconstruction from DRRs. [NeurIPS (W)]

Research Intern Mar. 2019 – Jul. 2019
ETS Montreal | Advisor: Jose Dolz *Montreal, Canada*

- Designed a novel attention module for Semantic Segmentation of abdominal region. [JBHI]

Selected Publications

- "*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,$\cdots$, 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.

Honors & Awards

- Multiple graduate fellowships at SFU (Ralph M Howatt, DBMiner, Backwater/Jost).
- Bronze medal in PetFinder.my Adoption Challenge hosted on Kaggle.

Skills

Programming Languages: Python, C++, MATLAB, SQL
Frameworks: PyTorch, JAX, Taichi, Chainer, Keras
Utilities: Docker, Git, (n)VIM, SLURM, Blender, ManiSkill, LaTeX, Tableau, Meshlab