SEEMANDHAR JAIN

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EDUCATION

- **University of California San Diego** — CA, USA
  PhD in Computer Science (**Fully Funded**) — July 2024 - Present
  Thesis Advisor: Dr. Manmohan Chandraker
  Thesis: Exploring the Potential of Large Language Models for 3D Scenes

- **University of Illinois Urbana-Champaign (Siebel Scholar, Class of 2024)** — IL, USA
  MS in Computer Science; GPA: 3.92/4 (**Fully Funded**) — Aug 2022 - May 2024
  Thesis Advisor: Dr. David Forsyth
  Thesis Title: Single-shot 3d Reconstruction and Convex Decomposition of Indoor Scenes

- **IIT Indore** — MP, India
  Bachelor of Technology in Computer Science and Engineering; GPA: 3.6/4 — July 2017 - May 2021
  Minor in Humanities and Social Sciences; GPA: 3.6/4

SKILLS

Programming Languages: Python, Java, C/C++, Apex, R, SQL, Matlab.
Research Skills: AI and Computer Vision: LLMs, 3D Reconstruction, 3D Vision, Diffusion Models, GANs, and NeRF.
Tools and Web Technologies: Django, Flask, React, Docker, Tableau, Mulesoft, AWS (EC2, Lambda, S3), Git, HTML, PHP, Scilab.
Technologies: PyTorch, JAX, TensorFlow, Deep Learning, Azure, Kubernetes, CUDA, PostgreSQL, MongoDB.

WORK/RESEARCH EXPERIENCE

- **Google**, New York, NY
  Student Researcher, BigML team — Jun 2025 - Present

  - Working with the BigML team to accelerate SANA-based diffusion for image generation used in the Veo video-generation pipeline.
  - Achieved a $2\times$ speedup in sampling/inference while preserving visual quality, enabling faster frame/image generation.
  - Trained a Gemma 2–based captioning pipeline image generation to improve LLM-conditioned generation, reducing FID by **20%**.

- **University of California San Diego**, CA, USA, — July 2024 - Present
  Graduate Research Assistant under Dr. Manmohan Chandraker

  - Researching 3D-aware scene synthesis using large language models (LLMs) for detailed reconstruction and generation.
  - Training LLM agents, like LLaMA, and using AutoGen for 3D reconstructions and scene understanding through VLMs.
  - Developing self-training LLMs capable of autonomously learning to perform 3D scene synthesis and pixel-level transformations.

- **Aireal**
  Research Scientist, Computer Vision — May 2024 - Sep 2024

  - Played a key role in raising **$5 million** in Series A funding by developing a novel single-image-to-3D texture mesh technique.
  - Developed an AI-powered interior design tool called Livvy that helps users transform inspiration images into their existing space.
  - Conducted research on the 3D reconstruction of rooms using diffusion models and NeRFs for virtual furniture removal/addition.

- **University of Illinois Urbana-Champaign**, IL, USA, — Aug 2022 - May 2024
  Graduate Teaching/Research Assistant under Dr. David Forsyth

  - Advanced 3D scene reconstruction, proposed *Blocks2World, 3DControlNet* using deep learning, and developed scenes segmentation.
  - Integrated generative models like stable diffusion and 3D-aware image editing applications, using mesh and point cloud.
  - Generated outdoor videos using diffusion models trained on our self-image-captioned indoor image dataset with multimodal LLMs.
  - Conducted intrinsic image decomposition into its albedo and shading components and performed relighting using diffusion models.

  Teaching Assistant for CS 225 (Data Structure and Algorithms), CS 128 (Intro to CS II), and CS 441 (Applied Machine Learning).

- **HealthAIgnite** (link)
  CEO, Founder and Managing Director — Jan 2022 - Present

  - Founded and currently manages HealthAIgnite, a leading healthcare AI consulting company focusing computer vision technologies.
  - Established partnerships with key healthcare institutions and MedTech companies, accelerating the adoption of AI solutions.

- **DOCOMO Innovations, Inc.** — California, USA
  Research Intern — May 2023 - August 2023

  - Developed a GPT2-based realtabformer model to fill missing data in datasets, which improved model prediction.

- ○ Designed and implemented a practical stereo depth system for videos, enhancing 3D depth perception.
- ○ Generated ads using Stable Diffusion, employing mask-based inpainting with LaMa and fine-tuned diffusion models on specific data.

- **Salesforce** — Hyderabad, India
  AMTS Software Developer (Artificial Intelligence) — July 2021 - August 2022
  - ○ Worked as a software developer in the CnP team, focusing on the development of Salesforce Products and Einstein AI.
  - ○ Implemented tax schema for EMEA region and performed full-stack development for feature enhancement on the Force.com platform.
  - ○ Automated core patch regression processes and deployed APIs using Mulesoft and Heroku, resulting in significant time saving.
  - ○ Served as a Scrum Master, leading the major release of the FnE product that added numerous new features for customers.

  Software Developer Intern, [Certificate] — May 2020 - July 2020
  - ○ Automated the manual process of estimating the time required to complete a Mulesoft project by implementing a machine learning algorithm on Heroku, creating REST API using Django, and developing front-end on the lightning platform using Aura and Apex.

- **University of Witwatersrand and University of Alberta**, South Africa and Canada
  Research Assistant under Dr. Osmar Zaiane, Dr. Jules M. Moualeu and Dr. Abhishek Srivastava, — Jan 2019 - May 2021
  - ○ Conducted research on an energy-efficient health monitoring approach with wireless body area networks (WBAN). Proposed an ML innovative approach to energy conservation and detection of alarming health status.
  - ○ Designed an automated surveillance system using ML models that utilize wireless sensor networks for detecting forest fires.
  - ○ Implemented a two-tier anomaly detection algorithm to identify and predict adverse conditions from health parameter readings.

SELECTED PUBLICATIONS

- **S. Jain**, R. Vasanth. *SwiftHome: Fast Real-Time Multi-Floor 3D House Generation from Text*. Submitted to WACV 2026 (**under review**).
- Xiao Zhang, **S. Jain**, Michael Maire, A. Bhattad, D. Forsyth. *Latent Intrinsics Emerge from Relighting Training*. NeurIPS, 2024. [link]
- **S. Jain**, V. Vavilala, D. Forsyth. *Improving Convex Decomposition with spatial priors, negative primitives, and transformers.*. NeurIPS, 2024. [Under Review]
- V. Vavilala, **S. Jain**, R. Vasanth, A. Bhattad, D. Forsyth. *3DControlNet: Bridging 2D Image Editing with 3D Control*. CVPR, 2024.
- V. Vavilala, **S. Jain**, R. Vasanth, A. Bhattad, D. Forsyth. *Blocks2World: Controlling Realistic Scenes with Editable Primitives*. DOI: 10.48550/arXiv.2307.03847. [link]
- **S. Jain**, P. Jain, PK. Upadhyay, JM. Moualeu, A. Srivastava. *An Energy Efficient Fault-Anomaly Detection in Wireless Body Area Networks*. ACM Transactions on Computing for Healthcare, 2022. DOI: 10.1145/3501773. [link]
- P. Jain, **S. Jain**, OR. Zaïane, A. Srivastava. *Anomaly Detection in Resource Constrained Environments with Streaming Data*. IEEE Transactions on Emerging Topics in Computational Intelligence, 2021. DOI: 10.1109/TETCI.2021.3070660. [link]
- CK. Maurya, **S. Jain**, V. Thakre. *Large-Scale Contact Tracing, Hotspot Detection, and Safe Route Recommendation*. Springer, 9th International Conference on Big Data Analytics, 2021. DOI: 10.1007/978-3-030-93620-4_13. [link]
- **S. Jain**, AA. Shastri, K. Ahuja, Y. Busnel, NP. Singh. *Cube Sampled K-Prototype Clustering for Featured Data*. IEEE 18th India Council International Conference, 2021. DOI: 10.1109/INDICON52576.2021.9691727. [link]
- **S. Jain**, P. Jain, A. Srivastava. *An Efficient Anomaly Detection Approach using Cube Sampling with Streaming Data*. International Conference on Pattern Recognition and Machine Intelligence, 2021. arXiv:2110.01813. [link]

ACHIEVEMENTS

- Awarded **Siebel Scholar**, Class of 2024 by Siebel foundation from UIUC.
- Interviewed by **Times of India** news for research on wildfire detection algorithm (2022).
- **Best BTP award** from Computer Science Department among the graduating students (2021).
- Qualified for Onsite Round of ACM ICPC 2019 and received honorable mention in ICPC Amritapuri regionals.
- Secured **3rd rank** in Onsite Finals of INCC 2018 hosted by IET DAVV on CodeChef (2018).
- Secured **1st** position among the **top 50** finalists of **DRONA 2018**: A management competition by IIM INDORE (2018).
- Secured **3rd** rank in Intra IIT Tech Meet Robo Race (2017).
- Secured All India Rank **1st** in IIT JEE Advanced (2017) in Mathematics Section with a score 122/122.
- Secured **1400** rank in IIT JEE Advanced (2017) among a million students.
- Secured **AIR 43** in technothlon hosted by IIT GUWAHATI (2016).
- Secured **State rank 2** and **International rank 26** in International Mathematics Olympiad (2015).
- UCMAS (Mental Math and Abacus) degree scholar, and secured 9th rank in UCMAS global competition (2013).

VOLUNTEERING AND LEADERSHIP EXPERIENCE

- Demonstrated rapid leadership ascent in the *Indian Graduate Students Association* at **UIUC**, coordinating the prominent 'Holi' festival for over a thousand attendees, showcasing my skills in team management, community building, and cultural event organization.

- As CEO, Founder, and Managing Director of **HealthAIgnite** since January 2022, I have spearheaded the company's strategic growth, expanded the client base, and integrated advanced computer vision technologies into our healthcare AI solutions.

- Led the resource development initiative for the **HOPE** NGO in India, connecting with NGOs and visits to orphanages to ensure the well-being of underprivileged children. Awarded with **MP Young Philanthropist Award** for my efforts and contributions.

- Took on the leadership role as the Captain of the University Debate Team, spearheading the team to achieve significant milestones, including **Regional** and **National Victories**.

- Acted as the **Lead** for IIT Indore's annual fest "**Fluxus**" (2021) during the COVID-19 pandemic. Led and coordinated a team of 20, successfully executing the event and showcasing strong leadership and organizational skills.

- **Chaired the student council** in my final year of undergrad, overseeing student welfare initiatives, event organization.