Ayush **Jain**

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Education

Carnegie Mellon University Pittsburgh, PA
PhD in Robotics Aug. 2023 – Present
Thesis Advisor : Prof. Katerina Fragkiadaki
Partially Supported by :
CMU Robotics Vision Fellowship (24-25 AY)
Meta AI Mentorship Fellowship (25-26 AY)

Carnegie Mellon University Pittsburgh, PA
Masters in Robotics (4.09 / 4.0) Aug. 2021 – Aug. 2023
Thesis Advisor : Prof. Katerina Fragkiadaki
Thesis Committee : Prof. Tom Mitchell, Prof. Shubham Tulsiani & Nikolaos Gkanatsios

Birla Institute of Technology & Sciences Rajasthan, India
Bachelor in Computer Science (9.33 / 10.0) Aug. 2017 – May 2021
Thesis : Active Embodied Vision - Towards Self-Supervised Never Ending Learners
Thesis Advisor : Prof. Katerina Fragkiadaki & Prof. Pratik Narang

Academic and Industrial Research Experience

Sep 2025 – Present | **Meta Robotics | Visiting Researcher, Pittsburgh, USA**
- Working with Dr. Roozbeh Mottaghi on embodied perception.

May 2025 – Sep 2025 | **Meta Reality Labs | Research Scientist Intern, Redmond, USA**
- Working with Dr. Fan Zhang and Dr. Adam Harley on dynamic 3D scene representations.

May 2024 – Dec. 2024 | **Meta Facebook AI Research | Research Scientist Intern, Pittsburgh, USA**
- Working with Dr. Franziska Meier and Dr. Sasha Sax on scaling up 3D perception models.

August 2021 – Present | **Carnegie Mellon University | Graduate Research Assistant, Pittsburgh, USA**
- With Prof. Katerina Fragkiadaki, I am working on perception systems static 2D and 3D scenes and robot manipulation.

May 2022 – August 2022 | **Apple Machine Learning Research | Research Intern, Cupertino, USA**
- With Dr. Navdeep Jaitly and Dr. Miguel Bautista, I worked on few-shot multimodal representation learning.

May 2020 – July 2021 | **Carnegie Mellon University | Research Associate, Pittsburgh, USA**
Project Page Code Paper
- With Prof. Katerina Fragkiadaki, I developed a method enabling an embodied agent to learn about objects without ground truth supervision in an unseen 3D environment by allowing the agent to move around.

August 2019 – May 2020 | **MultiCog Research Group | Computer Vision Research Assistant, Pilani, India**
Project Page Code Paper
- With Prof. Pratik Narang, I built an object detection model for aerial images improving over Retinanet model by 10%

May 2019 – August 2019 | **Indira Gandhi Center for Atomic Research | Research Assistant, Chennai, India**
Project Page Code Paper
- With Dr. N.M. Meenachi, I built the first nuclear language dataset - NText and NQuAD(Nuclear Question Answering Dataset) consisting of 730 question-answer pairs.

Publications

2025 **Jain, A.***, Swerdlow, A.*, Wang, Y., Arnaud, S., Martin, A., Sax, A., Meier, F., Fragkiadaki, K., 2025 "Unifying 2D and 3D Vision-Language Understanding". **(ICML 2025)** Website

2025 Sarch, G., Saha, S., Khandelwal, N., **Jain, A.**, Tarr, M. J., Kumar, A., Fragkiadaki, K., 2025 "Grounded Reinforcement Learning for Visual Reasoning." **(In Submission)** Website

2025 **Jain, A.***, Swerdlow, A.*, Wang, Y., Arnaud, S., Martin, A., Sax, A., Meier, F., Fragkiadaki, K., 2025 "Unifying 2D and 3D Vision-Language Understanding". **(ICML 2025)** Website

2025 McVay, P.*, Arnaud, S.*, Martin, A., Majumdar, A., Jatavallabhula, K. M., Thomas, P., Partsey, R., Dugas, D., Gejji, A., Sax, A., Berges, V.-P., Henaff, M., **Jain, A.**, Cao, A., Prasad, I., Kalakrishnan, M., Rabbat, M., Ballas, N., Assran, M., Maksymets, O., Rajeswaran, A., Meier, F., 2025 "Locate 3D : Real-World Object Localization via Self-Supervised Learning in 3D".**(ICML 2025)** (Spotlight) Website

2025 Cao, A., Arnaud, S., Maksymets, O., Yang, J., **Jain, A.**, Yenamandra, S., Martin, A., Berges, V.-P., McVay, P., Partsey, R., Rajeswaran, A., Meier, F., Johnson, J., Park, J. J., Sax, A., 2025 "LIFT-GS : Cross-Scene Render-Supervised Distillation for 3D Language Grounding". (**ICML 2025**) Website

2024 **Jain, A.**, Katara P., Gkanatsios, N., Harley, A., Sarch G., Aggarwal K., Chaudhary V., Fragkiadaki, K., 2024 "ODIN : A Single Model for 2D and 3D Segmentation". (**CVPR 2024**) (Highlight) Website

2024 Yang B., Su H., Gkanatsios, N., Ke, T., **Jain A.**, Schneider J., Fragkiadaki, K., 2024 "Diffusion-ES : Gradient-free Planning with Diffusion for Autonomous Driving and Zero-Shot Instruction Following". **(CVPR 2024)** Website

2023 Gkanatsios, N.*, **Jain, A.***, Zhou X., Zhang Y., Atkeson, C., Fragkiadaki, K., 2023 "Energy-based Models are Zero-Shot Planners for Compositional Scene Rearrangement". **(RSS 2023)** Website

2022 **Jain, A.***, Gkanatsios, N.*, Mediratta, I., Fragkiadaki, K., 2022 "Bottom Up Top Down Detection Transformers for Language Grounding in Images and Point Clouds". **(ECCV 2022)** Website

2021 Fang, Z.*, **Jain, A.***, Sarch, G.*, Harley, A., Fragkiadaki, K., 2020 "Move to See Better : Self-Improving Embodied Object Detection". **(BMVC 2021)** Paper Code

2021 **Jain, A.***, Ramaprasad, R.*, Narang, P., et al., 2020 "AI-Enabled Object Detection in Unmanned Aerial Vehicles for Edge Computing Applications." **(IEEE Network. 2021)** Paper Code

2020 **Jain, A.**, Meenachi, N.M. and Venkatraman, B., 2020 "NukeBERT : A Pre-trained language model for Low Resource Nuclear Domain." **(Arxiv 2020)** Paper Code

Research Collaborations with Non-Academic Institutions

Jan 2022 – July 2023 | **Microsoft Turing Academic Program, Redmond, USA**
Website
- CMU-MSTAP project "Learning instructible visuo-motor agents through multimodal interactive teaching"

Dec 2021 **April 2023**	**Amazon Alexa Prize SimBot Challenge, Seattle, USA** Team Page • Developing multimodal instruction following agents as a member of CMU Symbiote Team • Our team got 2nd place in the first phase of the competition.

Awards and Scholarships

2025	**Meta-CMU AI Mentorship Fellowship** $150,000 award for 25-26 AY
2024	**CMU Robotics Vision Fellowship** $42k award for 24-25 AY
2024	**Outstanding Reviewer Award, CVPR 2024**
2023	**Outstanding Reviewer Award, ICCV 2023**
2021-23	**Research Scholarship** Full tuition funding and stipend for my masters in robotics.
2019	**Google AI Summer School** 1/50 students across India selected for Google AI summer school
2019	**York CVR – VISTA Vision Science Summer School** 1/50 students selected worldwide
2018-20	**Institute Merit Scholarship** Awarded to top 3% students for Exceptional Performance
2017-18	**Mcrosoft Codefundo++ Hackathon** Placed 3rd/150+ teams on campus
2016-17	**KVPY Scholar** A national level scholarship for adjudging high research potential
2016-17	**National Science Examination in Physics (NSEP) Fellow**

Academic and Administrative Experience

2020-Present	Reviewer for Neurips, CVPR, ECCV, ICCV, ICML, ICLR, ICRA, BMVC, AAAI, TPAMI
2024-24	Teaching Assistant, Advanced Computer Vision, CMU
2024-24	Teaching Assistant, Learning for 3D Vision, CMU
2019-20	Teaching Assistant, Artificial Intelligence, BITS PILANI
2019-20	Teaching Assistant, Machine Learning, BITS PILANI
2019-20	Team Leader, Microsoft Student Partner, BITS Pilani
2018-20	Teaching Assistant, Computer Programming, BITS PILANI

Technical Expertise

Programmation	**Python**, C, C++, Java, HTML, CSS
Frameworks	**Pytorch**, Tensorflow, Django
Simulators	PyBullet, Ai2Thor, Habitat AI, Open AI Gym

Outreach and Volunteering

2024-Present	Mentor - ML Collective Office Hours
2024	Mentor - CMU Graduate Application Support Program
2024	Mentor - Robobuddies Mentoring Program
2023-Present	Mentor - CMU Undergrad AI Mentoring Program