

Ayush JAIN

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EDUCATION

Carnegie Mellon University

PhD in Robotics

Thesis Advisor : Prof. Katerina Fragkiadaki

Supported by : CMU Robotics Vision Fellowship (24-25 AY)

Pittsburgh, PA

Aug. 2023 – Present

Carnegie Mellon University

Masters in Robotics (4.09 / 4.0)

Thesis Advisor : Prof. Katerina Fragkiadaki

Thesis Committee : Prof. Tom Mitchell, Prof. Shubham Tulsiani & Nikolaos Gkanatsios

Pittsburgh, PA

Aug. 2021 – Aug. 2023

Birla Institute of Technology & Sciences

Bachelor in Computer Science (9.33 / 10.0)

Thesis : Active Embodied Vision - Towards Self-Supervised Never Ending Learners

Thesis Advisor : Prof. Katerina Fragkiadaki & Prof. Pratik Narang

Rajasthan, India

Aug. 2017 – May 2021

PUBLICATIONS

- 2024 **Jain, A.***, Swerdlow A.*, Wang Y., Sax S., Meier F., Fragkiadaki, K., 2024 “RODIN : Injecting 2D Foundation Features to 3D Visual Language Understanding”. (Under Review)
- 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) [Paper](#)
- 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 Dawei Du, Longyin Wen, Pengfei Zhu, Heng Fan, Qinghua Hu, Haibin Ling, Mubarak Shah, **Jain, A.**, Narang, P., et al., 2020 “VisDrone-DET2020 : The Vision Meets Drone Object Detection in Image Challenge Results.” (ECCV 2020 Workshop) [Paper](#)
- 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	Amazon Alexa Prize SimBot Challenge, SEATTLE, USA
April 2023	Team Page <ul style="list-style-type: none"> Developing multimodal instruction following agents as a member of CMU Symbiote Team Our team got 2nd place in the first phase of the competition.

ACADEMIC AND INDUSTRIAL RESEARCH EXPERIENCE

May 2024 Present	Meta Research Scientist Intern, PITTSBURGH, USA <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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 <ul style="list-style-type: none"> 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.

AWARDS AND SCHOLARSHIPS

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.
2019-20	Google AI Summer School 1/50 students across India selected for Google AI summer school
2019-20	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	Microsoft Codefundo++ Hackathon Placed 3rd/150+ teams on campus
2016-17	KVPY Scholar A national level drive 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, ICLR, ICRA, BMVC, AAAI, TPAMI
2024-Present	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

Programming	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