Jay Darshan Vakil

+1 (206)294-9533 | jdvakil@gmail.com | jdvakil.github.io | github.com/jdvakil | linkedin.com/in/jdvakil | Jay Vakil

Robotics, Robot learning, Motion planning, Embodied AI

Research Experience

Facebook AI Research, *Robotic System Engineer* | Fremont, CA *July 2023 - Present*

- **Mentors:** Dr Christopher Paxton, Dr Franziska Meier
- **Research Focus:** Mobile manipulation, Visual language models, Instance exploration and navigation

Facebook AI Research, *Robotic System Engineer* | Pittsburgh, PA *April 2022 - July 2023*

- **Mentors:** Dr Vikash Kumar, Dr Christopher Paxton
- **Research Focus:** Visual imitation learning for robot manipulation, Offline reinforcement learning, Mobile manipulation

Education

Bachelor of Science in Electrical Engineering, *University of Washington* | Seattle, WA *Sept 2018 - Mar 2022*

- Minor in Mathematics
- **Courses:** Object-Oriented programming with Java, Software Engineering, Data structures and algorithm, Linear/discrete signal processing, Microprocessor system design, AC/DC circuit analysis, Digital circuit analysis, Electrodynamics, Transistors and amplifiers, Electrical testing, Biomedical instrumentation.

Publications

RoboHive: A Unified Framework for Robot Learning

Vikash Kumar, Rutav Shah, Gaoyue Zhou, Vincent Moens, Vittorio Caggiano, **Jay Vakil**, Abhishek Gupta, and Aravind Rajeswaran

- Accepted at NeurIPS 2023
- Website Paper

RoboAgent: Towards Sample Efficient Robot Manipulation with Semantic Augmentations and Action Chunking

Homanga Bharadhwaj, **Jay Vakil**, Mohit Sharma, Abhinav Gupta, Shubham Tulsiani, and Vikash Kumar

- Accepted at workshops in NeurIPS 2023 and CoRL 2023. In submission to IEEE International Conference on Robotics and Automation (ICRA), 2023
- Website Paper

What do we learn from a large-scale study of pre-trained visual representations in sim and real environments?

Sneha Silwal, Karmesh Yadav, Tingfan Wu, **Jay Vakil**, Arjun Majumdar, Sergio Arnaud, Claire Chen, Vincent-Pierre Berges, Dhruv Batra, Aravind Rajeswaran, Mrinal Kalakrishnan, Franziska Meier, and Oleksandr Maksymets

- In submission to IEEE International Conference on Robotics and Automation (ICRA), 2024
- Website Paper

Where are we in the search for an Artificial Visual Cortex for Embodied Intelligence?

Arjun Majumdar, Karmesh Yadav, Sergio Arnaud, Yecheng Jason Ma, Claire Chen, Sneha Silwal, Aryan Jain, Vincent-Pierre Berges, Tingfan Wu, **Jay Vakil**, Pieter Abbeel, Jitendra Malik, Dhruv Batra, Yixin Lin, Oleksandr Maksymets, Aravind Rajeswaran, Franziska Meier

- Accepted at NeurIPS 2023
- Website Paper

SLAP: Spatial-Language Attention Policies

Priyam Parashar, Vidhi Jain, Xiaohan Zhang, **Jay Vakil**, Sam Powers, and Chris Paxton

- Accepted at CoRL 2023
- Website Paper

Master Controller For High Energy Electron Source Part II

Jay Vakil, Esayas Abera, Cyrus Safi, Wayne Kimura

- Undergraduate capstone research project
- Presentation

Select media coverage

- **Carnegie Mellon University** Parenting a 3-Year-Old Robot
- **TechCrunch** Human toddlers are inspiring new approaches to robot learning
- **IEEE Spectrum** Video Friday: A 3-Year-Old Robot Your weekly selection of awesome robot videos
- **Hackaday** ROBOAGENT GETS ITS MT-ACT TOGETHER
- **TechBrief** Meet RoboAgent: Enabling Robots to Acquire Manipulation Abilities
- **Communications of the ACM** Parenting a Three-Year-Old Robot

Academic service

Reviewer

- 2024 IEEE International Conference on Robotics and Automation (ICRA 2024)

Skills

Language	English, Hindi, Gujarati
Programming	Python, C/C++, C#, Java, Catkin, CUDA, CMake, Matlab, Scripting (Bash), LaTeX, HTML, Vim, Linux, Tensorflow, Pytorch, Docker, OpenCV, AWS S3, Git
Robotics/Hardware	ROS 1/2, MuJoCo, FPGA, Arduino, Raspberry PI, PCB design, AtMega 2560, Sensor Interfacing, Sensor Fusion, Signal processing, Digital/Analog circuit design and simulation, Microprocessors, Embedded systems, Circuit testing, Transistor-level design, CAD, Systems on Chip (SoC), Electrical circuit testing, PCB design and testing.