

Jacob Berg

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Education

- BS** **University of Washington**, Computer Science Aug 2020 – May 2024
- GPA: 3.94/4.0, Joined UW early at age 16, recipient of UW Academy and Burkhardt Family Endowed Scholarships
 - **Coursework:** Graduate level courses in NLP, robotics, deep learning, computer and ML systems, and theory. Additional coursework in data structures, algorithms, multivariable calculus, and linear algebra.
- MS** **University of Washington**, Computer Science May 2024 – present
- GPA: 4.0/4.0

Experience

- WEIRD Lab**, Research Assistant University of Washington
Feb 2023 – present
- Co-Authored and Co-First authored papers published at top-tier conferences on the topics of AI and robotics.
 - Implemented multiple different infrastructure pipelines for data collection and robotic policy learning being used throughout the lab
 - Developed novel imitation learning and reinforcement algorithms for robotic manipulation tasks.
 - Led outreach by organizing and running lab tours for underprivileged high school and middle school students.
- Amazon Robotics**, SDE Intern Boston, MA
June 2023 – Sept 2023
- Prototyped an item manipulation robot, reducing pick time from 13 to 6 seconds. Gave multiple demonstrations to senior executives.
 - Implemented control and planning software, as well as computer vision software in C++ to run on edge devices.
 - Researched and implemented a novel PyTorch vision network for grasp prediction, improving data annotation speed by 10x and accuracy by 3x.
 - Read and then evaluated papers on deep learning methods for 3D object pose estimation using synthetic data generation.
- Paul Allen School of Computer Science**, Predoctoral Instructor: CSE 311 Seattle, WA
June 2024 – Aug 2024
- Instructed and developed curriculum for a 68 student course on discrete math and proofs.
 - Hired and managed a team of 6 TAs to facilitate the course.
 - Received an excellent course evaluation.
- Paul Allen School of Computer Science**, Head Teaching Assistant, CSE 142, CSE 311, CSE 579 Seattle, WA
Sept 2021 – present
- Organized and led weekly staff meetings with 18 TAs and managed a team of 4 TAs to write homework and exams.
 - Managed a team of 8 TAs to contact students struggling in the course and set up one-on-one meetings to provide support.
 - Developed assignments on Soft Actor-Critic and Diffusion Policies

Publications

STRAP: Robot Sub-Trajectory Retrieval for Augmented Policy Learning

In Submission

Marius Memmel*, **Jacob Berg***, Abhishek Gupta, Bingqing Chen, Jonathan Francis
weirdlabuw.github.io/strap [↗](#)

SERL: A Software Suite for Sample-Efficient Robotic Reinforcement Learning

Apr 2024

Jianlan Luo, Zheyuan Hu, Charles Xu, You Liang Tan, **Jacob Berg**, Archit Sharma, Stefan Schaal,
Chelsea Finn, Abhishek Gupta, Sergey Levine
arxiv.org/abs/2401.16013 [↗](#)

Rank2Reward: Learning Shaped Reward Functions from Passive Video

Mar 2024

Daniel Yang, Davin Tjia, **Jacob Berg**, Dima Damen, Pulkit Agrawal, Abhishek Gupta
arxiv.org/abs/2404.14735 [↗](#)

Projects

Submitit-Tools

JacobB33/submitit-tools [↗](#)

- Developed a python package to streamline the process of submitting mass experiments to the UW super computer
- Adopted across WEIRD lab and have given tutorials on it to other labs.

Diffusion From Brain Scans

JacobB33/brain-diffusion [↗](#)

- Replicated and extended paper on diffusing images from brain scans (Takagi et al)
- Implemented and benchmarked multi node training on AWS EC2 instances

Husky Robotics Software Member

Sept 2020-Sept 2022

- In 2021 placed 3rd in Virtual University Rover Challenge, and in 2022 placed 2nd at Canadian International Rover Challenge
- Essential personnel: regularly attended Husky lab during COVID to write and debug code

Technologies

Languages: C++, C, Java, JavaScript, Python, Go

Technologies: CMake, Git, Docker, PyTorch, TensorRT, HuggingFace, Open-CV, Linux