

Dhruv Sreenivas

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EDUCATION

Cornell University
M.S. Computer Science
GPA: 4.30/4.0

Ithaca, NY

Aug 2021 - Aug 2023

Advisors: Wen Sun, Robert Kleinberg

- TA for CS 2110, CS 4789, CS 6756 (PhD), CS 6789 (PhD)

B.S. Computer Science, Mathematics
GPA: 3.66/4.0

Aug 2018 - May 2021

Notable awards: AIME Qualifier (2015-2018) (8/15 on 2017 exam), 68th in Massachusetts Mathematical Olympiad (2014)

PUBLICATIONS & SERVICE

3. *Adversarial Imitation Learning via Boosting*

Jonathan Chang, Dhruv Sreenivas, Yingbing Huang, Kianté Brantley, Wen Sun
ICLR 2024

2. *Deep Multi-Modal Structural Equations For Causal Effect Estimation With Unstructured Proxies*

Shachi Deshpande, Kaiwen Wang, Dhruv Sreenivas, Zheng Li, Volodymyr Kuleshov
NeurIPS 2022

1. *Mitigating Covariate Shift in Imitation Learning via Offline Data Without Great Coverage*

Jonathan Chang, Masatoshi Uehara, Dhruv Sreenivas, Rahul Kidambi, Wen Sun
NeurIPS 2021

- Reviewer for NeurIPS 2023, ICLR 2024

INDUSTRY EXPERIENCE

Apple MLR

Research Intern

Cupertino, CA

May 2022 – Sep 2022

- Proposed using simple clustering of subtrajectory representations for offline option learning, advised by Walter Talbott
- Resulting method was shown to be qualitatively much better at detecting behavioral differences across diverse offline datasets than other image-based methods, allowing for effective option learning and simpler offline RL
- Implemented Dreamer recurrent world model and image-based discrete CQL in PyTorch, compatible with GPU accelerators and SLURM workload management
- Explored various different techniques for representation learning, including view-based and reconstruction-based methods
- Concurrently studied representation learning for on-policy RL with Riashat Islam & Devon Hjelm

Amazon Web Services

Software Development Engineer Intern

Boston, MA

Jun 2021 – Aug 2021

- Worked on AWS Boost team, used Pandas and NumPy to (1) aggregate seller data across multiple time periods and (2) develop a performance metric based on available data to rank sellers on the platform
- Performance metric was aimed to be simple to compute, resulting in linear model of different seller attributes that was a suitable ranking
- Integrated performance metric into a new page on the Boost web application with TypeScript

Cornell Cup Robotics

Machine Learning Team Member

Ithaca, NY

Oct 2020 – May 2021

- Used Haystack API from DeepSet AI to develop scalable Q/A system for R2D2-like robot
- Offloaded all heavy-compute ML systems (~80% of compute) onto AWS to ease workload for main machine

VMware Inc.

Data Science Intern

Palo Alto, CA (remote)

Jun 2020 – Aug 2020

- Analyzed in-house device risk score model by comparing with ground-truth security scores across a diverse device dataset
- Constructed random forest models to determine which device features were most indicative of riskiness

ACADEMIC RESEARCH EXPERIENCE

Cornell University - Prof. Wen Sun

Undergraduate/Graduate Researcher

Ithaca, NY

Sep 2020 – Dec 2023

- Assisted on projects focused on (1) joint representation learning in imitation learning settings with high-dimensional state spaces and (2) model-based offline imitation learning in state-based, image-based and non-action-based graphics settings
- Co-led a project focused on making Discriminator Actor-Critic more principled via gradient boosting methods
- Currently leading projects on (1) self-predictive learning for RL in the image-based control context and (2) hybrid RL from preferences (RLHF)
- Assisting another student on a project focusing on using RL from guided feedback to finetune diffusion models

Mila - Quebec AI Institute

Research Collaborator

Montreal, QC (remote)

Apr 2021 – Mar 2022

- Reinforcement learning research for the LambdaZero project focusing on scaling drug discovery
- Looked into ways to improve exploration in GFlowNets using techniques such as epistemic uncertainty estimation, RND, and asymmetric self-play

PROJECTS

- **JAX Sandbox:** Implementation of RL algorithms in JAX/Flax. Attempts to be an extension of JAXRL and CleanRL, with additional algorithms added in.

- **BYOL-Offline:** Experimented with using the mechanics of a recent state-of-the-art exploration method in the model-based offline RL context. Particularly looked at using this approach on image-based control tasks.

SKILLS

Languages: Python, Java, OCaml, C++, C, \LaTeX

Libraries/Frameworks: PyTorch, JAX (Haiku, Flax), TensorFlow, NumPy, Pandas, SKLearn, PySpark, OpenCV, Git