

# Joey Hejna

(Donald Joseph Hejna III)

jhejna@stanford.edu

[joeyhejna.com](http://joeyhejna.com)

[github.com/jhejna](https://github.com/jhejna)

## Education

### Stanford University

September 2021 - Present

#### PhD in Computer Science, AI

GPA: 4.3/4.0

- *Funding Awards:* I am graciously supported by a DoD NDSEG Fellowship, roughly 2% selection rate.
- *Research:* I am advised by Dorsa Sadigh and part of the ILIAD lab. My research focuses on deep learning for intelligent decision-making systems in the context of robotics.

### University of California, Berkeley

August 2017 – May 2021

#### B.S. in Electrical Engineering and Computer Science

GPA: 4.0/4.0

- *Academic Awards:* Highest Honors, top 3% of graduates; Regents and Chancellors Scholar, top <2% incoming
- *Research:* Advised by Pieter Abbeel and Lerrel Pinto. CRA Undergrad Research Award Honorable mention

## Publications

### Inverse Preference Learning: Preference-based RL Without a Reward Function

Under Review

Joey Hejna, Dorsa Sadigh. <https://arxiv.org/abs/2305.15363>

- Algorithm for directly aligning Q-function with user preferences, circumventing reward learning.

### Distance Weighted Supervised Learning

Published at ICML 2023

Joey Hejna, Jensen Gao, Dorsa Sadigh. <https://arxiv.org/abs/2304.13774>

- Derived method to learn optimal KL-constrained policies in offline goal conditioned RL without TD learning.

### Extreme Q-Learning: MaxEnt RL without Entropy

Published at ICLR 2023

Div Garg\*, Joey Hejna\*, Mattheiu Gesit, Stefano Ermon. <https://openreview.net/pdf?id=SJ0Lde3tRL>

- Introduce a Q-learning framework that models the optimal soft-values without needing to sample from a policy.

### Few-Shot Preference Learning for Human-in-the-Loop RL

Published at CoRL 2022

Joey Hejna, Dorsa Sadigh. <https://openreview.net/pdf?id=IKC5TfXLuW0>

- Leverage pretraining strategies to improve the query-complexity of preference learning by 20X on robotic tasks.

### Improving Long-Horizon Imitation Through Instruction Prediction

Published at AAAI 2023

Donald Joseph Hejna III, Pieter Abbeel, Lerrel Pinto. <https://openreview.net/pdf?id=1Z3h4rCLvo->

- We show that modeling language instructions drastically improves generalization in low data regimes.

### Task-Agnostic Morphology Evolution

Published at ICLR 2021

Donald Joseph Hejna III, Pieter Abbeel, Lerrel Pinto. <https://openreview.net/pdf?id=CGQ6ENUMX6>

- We introduce the first unsupervised algorithm for agent design optimization using unsupervised objectives.

### Hierarchically Decoupled Imitation for Morphological Transfer

Published at ICML 2020

Donald Joseph Hejna III, Pieter Abbeel, Lerrel Pinto. <https://arxiv.org/abs/2003.01709>

- Leverage imitation techniques to develop approaches for transferring robot policies across embodiments.

### Improving Latent Representations via Explicit Disentanglement

Course Project – Unsupervised Learning

Donald Joseph Hejna III\*, Ashwin Vangipuram\*, Kara Liu\*. <http://joeyhejna.com/files/disentanglement.pdf>

- Introduce three methods for disentangling latent representations: cycle loss, divergence penalty, factor prediction.

## Industry Experience

### Citadel Global Quantitative Strategies, Intern

June 2019 – August 2019

- Developed C++ proxy and API to improve job monitoring, KDB testing scripts for multi-server trading systems.
- Created APIs for trade messages, unified with query systems under a central platform for easy use by traders.
- Explored techniques for reducing RAM usage of decision tree training libraries. Achieved 75% load reduction.

### Intel AI Products Group, Intern

May 2018 – August 2018

- Produced demo-products for Intel OpenVino Model Optimizer. Computer vision project [featured on intel's blog](#).

- Developed workflows for AWS model training, explored gradient based explanations for CV and NLP models.

### **Switchboard, Contracted Android Developer**

*Jan 2018 – August 2018*

- Programmed a multi-user voice-communication android app for Berkeley Skydeck Startup via TokBox API.
- Routed user events using SocketIO, guaranteed delivery with ack messages. Custom API for feed, notifications.

## **Teaching and Open Source**

---

### **CS 189: Machine Learning, Teaching Assistant**

*Spring 2020, Spring 2021*

- Taught sections on topics from classic ML to modern deep learning. Author of neural nets homework, still used.
- Earned overall rating of 4.61/5.00 from students in comparison to department average of 4.41

### **EECS 127: Optimization Models, Teaching Assistant**

*Fall 2020*

- Taught sections on linear alg, duality, convex models. Managed website and internal course logistics.

### **CS 70: Discrete Math and Probability Theory, Teaching Assistant**

*Fall 2019*

- Taught two weekly discussions, held office hours. Earned overall 4.68/5.00 rating in comparison to 4.33 average.

### **Research Lightning**

<https://github.com/jhejna/research-lightning>

- A lightweight open-source framework used for quickly implementing deep learning algorithm in Pytorch
- Reproduce SOTA implementations of SAC, TD3, PPO etc.

### **Hack:Now – UC Berkeley CalHacks, Workshop Instructor**

*April 2020*

- Gave an introductory machine learning tutorial for an online version of Cal Hacks, the largest collegiate hackathon. Prepared all materials and presented. <https://github.com/jhejna/mlworkshop>

## **Fellowships and Awards**

---

**DoD NDSEG Fellowship 2021**, roughly a 2% selection rate.

**Highest Honors, UC Berkeley Engineering 2021**, top 3% of graduating class.

**CRA Undergraduate Research Honorable Mention**. Awarded to top undergraduate CS researchers in the US.

**Regents and Chancellors Scholar**. Awarded to <2% of top entering undergraduate students at UC Berkeley

**EECS Honors Program**. Program for high achieving students in academics and research.

**Dean's List**. Awarded for maintaining academic position in top <10% of engineering students at UC Berkeley.

**Rambus Innovator of the Future 2017**. Scholarship awarded for exceptional academics and research.

**Kraft Award for Freshmen**. Awarded to ~4% of freshmen UC Berkeley students for academic standing.

**Eta Kappa Nu (EECS Honors Society)**. Top students in EECS with junior standing or above, joined sophomore year.