Joey Hejna
(Donald Joseph Hejna III)

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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

Distance Weighted Supervised Learning *Under Review*
Joey Hejna, Jensen Gao, Dorsa Sadigh.

- Derived method to learn optimal KL-constrained policies in offline goal conditioned RL without TD learning.
- Showed empirical success on high-dimensional image-based robotics domains, surpassed bootstrapped methods.

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

- We introduce a novel framework for Q-learning that models the maximal soft-values without needing to sample from a policy, improving performance in both online and offline RL settings.

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.
- Empirically, we outperform task-supervised algorithms in multi-task settings while being 4x as fast.

Hierarchically Decoupled Imitation for Morphological Transfer *Published at ICML 2020*
Donald Joseph Hejna III, Pieter Abbeel, Lerrel Pinto. https://arxiv.org/abs/2003.01709

- We overcome different input/output spaces using a hierarchical structure and contribute two key algorithmic improvements motivated by information theory to overcome the domain shift induced in transfer.

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 logicstics.

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 algorithsm 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.