Joey Hejna

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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 5% selection rate.
- *Research Interest:* My research focuses on learning for intelligent decision-making systems.

University of California, Berkeley *August 2017 – May 2021*
B.S. 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 Awards:* 2021 CRA Undergrad Research Award Honorable mention

Publications

Contrastive Preference Learning: Learning from Human Feedback without RL *ArXiv Preprint*
Joey Hejna, Rafael Rafailov, Harshit Sikchi, Chelsea Finn, Scott Niekum, W Bradley Knox, Dorsa Sadigh

- We learn the optimal policy from regret-based preferences without RL, scaling elegantly to high dimensions.

Inverse Preference Learning: Preference-based RL Without a Reward Function *Published at NeurIPS 2023*
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 (Oral)*
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.

Professional 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.
- 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.

Activities and Projects

Research Lightning *https://github.com/jhejna/research-lightning*

- A lightweight open-source framework used for quickly implementing deep learning algorithms in pytorch.

Teaching Assistant *August 2019 - Present*

- CS 189: Machine Learning (Sp20, Sp21). EECS 127: Optimization Models (Fa20). CS 70: Discrete Math and Probability (Fa19), CS 221 Head Teaching Assistant.