Joey Hejna

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Education

University of California, Berkeley | 4.0 GPA *Aug 2017 - Present*

Major: B.S. in Electrical Engineering and Computer Science. (*) denotes A+

- Regents and Chancellors Scholarship, Engineering's Dean's List – top 10%, HKN EECS Honors organization
- CS: Data Structures, Algorithms, Info Systems, Computer Architecture*, Operating Systems
- Math: Machine Learning, Artificial Intelligence*, Discrete Math, Probability*, Real Analysis, Optimization, Signals
- Graduate: Deep Reinforcement Learning, Designing Neural Networks*, Deep Unsupervised Learning*

Experience

Berkeley AI Research | Undergraduate Researcher *Sept 2019 -Present*

- Working under Prof. Pieter Abbeel and Lerrel Pinto on problems in robot learning and morphology.
- Currently exploring techniques for learning optimal robot morphologies and meta-learning in evolutionary algs.

Citadel | Software Engineering Intern *June 2019 -Aug 2019*

- Developed C++ proxy and API to improve job monitoring, leveraged KDB for testing multi-server trading systems
- Created APIs for trade messages, then unified them with query systems under a new central platform for traders.
- Explored techniques for reducing RAM usage of large model training libraries, causing peak reduction of 75%

Intel AI Products Group | Artificial Intelligence Intern *May 2018 -Aug 2018*

- Created demo projects for Intel OpenVino Model Optimizer with AWS DeepLens device, published tutorial.
- Explored gradient based model explanations in image-classification and NLP problems for generalized local estimations of differentiable models. Assessed explainability of adversarial generation via fast gradients.
- Documented workflows for AWS EC2, S3, and SageMaker for training and tuning largescale networks.

UC Berkeley Auto Lab | Research Assistant *Feb 2019 - Sept 2019*

- Integrating object detection models (SSD) with fully convolutional grasp quality networks for one shot object recognition and grasp planning. Designing, testing, and implementing multiple architectures in tensorflow.

UC Berkeley RISE Lab | Research Assistant *Jan 2019 - Aug 2019*

- Leading model curation team for modelzoo.live project for RISE Lab's Clipper machine learning inference system.
- Creating dockized server containers to serve object detection, image classification, and text generation models.

Switchboard | Android Developer (Contracted) *Jan 2018 - Aug 2018*

- Developed professional Android voice messaging application for a Berkeley SkyDeck startup Switchboard.
- Managed multi-user audio recording and streaming with TokBox API. Custom API for feed/status/notifications.
- Routed user events using SocketIO connection. Implemented socket guaranteed delivery with ack messages.

Publications & Projects

Hierarchically Decoupled Imitation for Morphological Transfer *ICML 2020*

D. Hejna III, P. Abbeel, L. Pinto. Accepted to ICML 2020. (https://arxiv.org/abs/2003.01709). We purpose two novel imitation based techniques for transferring RL policies across agents with different state & action spaces.

Improving Latent Representations via Explicit Disentanglement *2020*

D. Hejna III*, A. Vangipuram*, K. Liu*. (joeyhejna.com/files/disentanglement.pdf) Project for graduate unsupervised learning course. Explore three methods of explicitly disentangling learned latent representations in autoencoders.

Activities

Teaching Assistant | EECS Department *August 2018 - Present*

- EECS 127: Optimization Models. Fall 2020. Teaching linear algebra, optimization, duality, etc.
- CS 189: Machine Learning. Spring 2020. Teaching weekly sections, designing course content.
- CS 70: Discrete Math and Probability Theory. Fall 2019. Leading two weekly sections and office hours.

Launchpad At Berkeley | AI / ML Developer *Jan 2018 - Present*

- Implementing mixture density and recurrent networks for reinforcement learning in compressed environments.
- Utilized the OpenAI reptile and MAML algorithms for meta reinforcement learning with Policy gradients.
- Designed method for unique object tracking in video with YOLOnet, nearest neighbors, and regression models.