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 current enrollment

- Regents and Chancellors Scholarship, Engineering's Dean's List – top 10%, HKN EECS Honors organization
- CS Coursework: Data Structures, Algorithms, Information Systems I & II, Computer Architecture, Operating Systems*
- Math Coursework: Machine Learning*, Artificial Intelligence*, Discrete Math, Probability, Real Analysis
- Couse Staff: Discrete Math & Probability Reader: hosting office hours and designing rubrics for student solutions.
- Stanford Summer Courses: Client-side Internet Technologies, Differential Equations for Engineers.

Experience & Research

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

- Working with the Global Quantitative Strategies technology team in Chicago.

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 - Present*

- Integrating object detection models (SSD) with fully convolutional grasp quality networks (FC-GQ-CNN) for one shot object recognition for improved planning of robust robot grasps. Extending DexNet Dataset generation.

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

- Leading model curation team for Model Zoo 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 client connection to custom API for user feed/status/notifications and multi-user audio recording and streaming with TokBox video chat REST API. Integrated with pre-existing iOS and Web App.
- Routed user events using SocketIO connection. Implemented socket guaranteed delivery with ack messages.

UC Berkeley Romps Group | Research Apprentice *Jan 2018 - Dec 2018*

- Implemented Raspberry Pi based system for collection of humidity/temp/pressure data and SQL Storage over serial.
- Proposed plan for 100m oscillating atmospheric helikite for measuring qualities of low cumulus clouds.

Stanford Dept. Political Science | Research Assistant *Jun 2016 - Aug 2016*

- Utilized Python's Natural Language Toolkit to parse and clean 1.3 Terabytes of Corporate 10K, 10Q filings
- Formed bigram datasets used to predict corporate donation tendencies based on language usage or keywords
- Created web-based visualizer using JavaScript, SQL, and Google Charts API to allow researchers to view changes in word frequency over time, filtered by industry or location using schema like that of Google n-grams

Activities & Projects

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. Attempted to use a replay buffer to improve accuracy by leveraging past experiences in the meta learning phase.
- Designed method for unique object tracking in video using YOLOnet model to predict future locations. Developed algorithms using nearest neighbor clustering and regression models in addition to function fitting neural networks. Tuned system to robustness across 30 seconds of traffic video. Demo Online.

Course Reader / Mentor | CS 70 Probability and Discrete Math *August 2018 - Present*

- Reader Spring 2019, assisting in office hours and grading. Fall 2018 Mentor, teaching small supplementary sections.

Skills

Programming: Java, Python, C, Tensorflow, Keras, Android, SQL, Unix, HTML/CSS, Javascript, AWS, Docker, Firebase
Engineering: Arduino / MSP Circuits, SolidWorks CAD, mill lathe & 3D printer fab, diff eq, multivar calc, stats, physics