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Chris Powers

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EDUCATION

Master of Electrical Engineering and Computer Science, University of California Berkeley May 2020

- **Courses:** Deep Reinforcement Learning, Advanced Robotics, Real Analysis

Bachelor of Electrical Engineering and Computer Science, University of California Berkeley May 2019

- 3.91 GPA; High Honors; Dean's List; member of EECS Honor Society (HKN)
- **Courses:** Data Structures, Algorithms, Operating Systems, Computer Security, Machine Learning, Artificial Intelligence, Deep Neural Networks, Optimization Models, Probability, Signals and Systems, Feedback Control

EXPERIENCE

Yelp Software Engineering Intern: Summer 2018

- Designed and built new intuitive ads cancellation flow from the ground up while retaining key functionality
- Made it easier for thousands of advertising Yelp business users to redeem promotional offers
- Full stack development with React and Redux frontend and Python backend on the business monetization team

RESEARCH

Berkeley Deep Drive with Professor Trevor Darrell Fall 2018-Present

Collaborative Image Annotation:

- Enabled real time, robust synchronization between users simultaneously labeling the same set of images
- Managed team of four undergraduates in updating backend codebase from Go to Node.js/Typescript

Scalable Model Serving:

- Sent users' annotation to computer vision models and returned predicted labels to assist users on next image
- Set up network of AWS servers, using Ray for autoscaling and GRPC for communication between Python and Go

UC Berkeley Automation Lab with Professor Ken Goldberg June 2016-May 2018

Automated Object Sorting:

- Designed robust method for decluttering a pile of objects and sorting the objects into categories. Rolled it out on HSR and Fetch robots, and used it to compete in the TRI hackathon and the Siemens FutureMakers Challenge
- Method was based on PCA and connected component analysis and built with OpenCV, Sklearn, NumPy, and SciPy

Web Labeling Tool:

- Allowed user to control robot in real time via remote web interface; used Pyro to link parallel Python processes
- Integrated with Amazon Mechanical Turk crowd-sourcing platform in Javascript frontend

Bed Making Robot:

- Applied Imitation Learning in Tensorflow to teach a Toyota HSR home robot how to make a bed
- Boosted performance with data augmentation, and evaluated performance with OpenCV contour detection

PROJECTS

Deep Image Colorization: Spring 2019

- Used Pix2Pix conditional GAN in Keras to colorize images, and implemented transfer learning between datasets

Piano Playing Robot: Fall 2018

- Improved standard ROS path planning to achieve clear sounding notes and allow two hands to play simultaneously
- Used OpenCV to compute 3D poses of piano keys from a camera image taken from the Baxter robot's moving arm

Music Transcription: Spring 2018

- Extracted sheet music from audio waveform using Fourier analysis and heuristics to segment and classify notes

Pacman Artificial Intelligence: Spring 2017

- Created Q-learning A.I. agent in Python that won first place in player vs. player contest in class of 400 students

SKILLS

Languages: Python, Javascript, C, Java, Golang, Unix scripting, Typescript, HTML/CSS,

Tools: Tensorflow, AWS, React, Redux, Node, Keras, OpenCV, NumPy, Git, Ray, ROS, Pyro, WebSocket, SciPy, Sklearn