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Chris Powers

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EDUCATION

Aug. 2015-May 2019

University of California, Berkeley EECS undergraduate (GPA: 3.848)

Courses:

Data Structures	Algorithms	Operating Systems	Linear Algebra and Differential Equations
Machine Learning	Artificial Intelligence	Machine Structures	Discrete Math and Probability Theory

RESEARCH

June 2016-Present

UC Berkeley Automation Lab with Professor Ken Goldberg

Used Deep Robotic Learning to solve manipulation tasks:

- Applied state of the art Imitation Learning algorithms to teach both a home robot and an industrial robot different manipulation tasks, including part singulation and bed making
- Used Tensorflow to implement cross validation over neural network architectures and parameters

Developed computer vision solutions for limited image data:

- Implemented data augmentation algorithms to increase the effectiveness of labeled image data
- Built custom vision tools, including contour detection to evaluate robot performance, using OpenCV

Created a real time web-based labeling interface:

- Used Javascript/HTML/CSS to design web interface for labeling images taken by the robot in real time
- Enabled communication between server and robot, and integrated with crowd-sourcing platform

Publications:

- Laskey, M.; **Powers, C.**; Goldberg, K. "High Dimensional representations for Learning Grasping in Clutter Policies from Demonstrations." RSS Conference. 2017
- (In Review) Laskey, M.; **Powers, C.**; Joshi, R.; Goldberg, K. "Learning Robust Bed Making using Deep Imitation Learning with Dart." ICRA. 2017

PROJECTS

Wrote player vs. player Pacman A.I. that won first in contest:

- Used probabilistic inference and hidden models to handle incomplete game state information
- Implemented RL algorithms including Q-Learning to calculate best move against adversarial agent

Created mobile robot that responds to voice commands:

- Constructed microphone audio signal processing circuit and implemented audio classification algorithm
- Calculated stable movements using feedback control and built circuit for sending output signal to motors

Created web-based geographic mapping application in Java

EXPERIENCE

EECS Honor Society Officer: May 2017-Present

- Facilitator for class that gives freshman and transfer students a survey of the fields in EECS

EE16B Course Staff: Feb 2017-Present

- Created and improved course content and graded coursework

ULAB Mentor: Spring 2017

- Volunteered for ULAB to support increased diversity in STEM research
- Mentored Berkeley freshman on their research to design an automated weed-killing robot

SKILLS

Programming: Python, Java, C, Javascript, Unix scripting, Robot C, SQL

Software: Tensorflow, OpenCV, HTML/CSS, Flask, NumPy, OpenMP

Interests: Japanese language, gaming, chess, mobile apps, basketball