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# Chris Powers

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## EDUCATION

Aug. 2015-May 2019

### University of California, Berkeley

EECS undergraduate (GPA: 3.838)

Courses (Completed and *In Progress*):

The Structure & Interpretation of Computer Programs  
Data Structures  
Machine Structures  
Designing Information Devices & Systems I and II  
Microelectronic Devices and Circuits  
Discrete Math and Probability Theory

*Introduction to Artificial Intelligence*  
*Efficient Algorithms and Intractable Problems*  
*Productive Use of the Unix Environment*  
Linear Algebra and Differential Equations  
Multivariable Calculus  
Physics for Scientists and Engineers

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## EXPERIENCE

June. 2016-Present

### Student Researcher

Work in UC Berkeley Automation Lab under Professor Ken Goldberg

Developed perception library for robotic learning systems

- Implemented and modified computer vision algorithms
- Developed binary masks that adapt to background
- Synthetically multiplied training data
- Created a script that detects any objects singulated a certain distance from a pile in under 0.5 seconds
- Created collision checker for robotic gripper

Machine Learning Work

- Trained YuMi robot through demonstrations to pick up objects (e.g. silverware, rope)
- Manually designed convolutional layer to detect rope endpoints
- Tested different neural network structures on Tesla K40 GPU

Improved coding workflow, organization, and version control usage while preparing code for open source release

### Machine Structures

Fall 2016

Used OpenMP and SSE intrinsics to parallelize an image-processing program for 5x speedup

### Designing Information Devices & Systems II

Spring 2016

Built mobile robot and programmed it to recognize and respond to voice commands

### VEX/FRC Robotics

Sep. 2011-May 2015

Mechanic, programmer then VEX sub-team leader for Team 254

Created autonomous programs using sensory feedback and PID control

Won VEX Excellence Award (2013), FRC World Championship (2014)

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## SKILLS

**Programming:** Java, Python, C, Swift, Objective C, Scheme, Robot C, MIPS, Javascript, SQL

**Other Software:** Tensorflow, OpenCV, Apache Spark, SSE Intrinsics, OpenMP, NumPy

**Interests:** Learning for robotics, chess, mobile apps, Japanese language, gaming