

# Alex Kashi

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## EDUCATION

### UC BERKELEY

**BS IN ELECTRICAL ENGINEERING  
AND COMPUTER SCIENCES**

Expected May 2017 | Berkeley, CA  
Cum Laude  
College of Engineering  
Cum. GPA: 3.85 / 4.0  
Major GPA: 3.84 / 4.0

## LINKS

Github:// [Alexkashi](#)  
LinkedIn:// [AlexKashi](#)

## COURSEWORK

### UNDERGRADUATE CS

Introduction to Machine Learning  
Operating Systems  
Artificial Intelligence  
Internet Architecture and Protocols  
Computer Security  
Efficient Algorithms

### UNDERGRADUATE EE

Feedback Control Systems  
Analog Integrated Circuits  
Introduction to Robotics  
Introduction to Embedded Systems  
Signals and Systems  
Microelectronic Devices and Circuits

## SKILLS

### PROGRAMMING

Professional Proficiency  
Java • Python • C++ • Android  
High Proficiency  
C • Matlab • Lua •  $\text{\LaTeX}$   
Working Proficiency  
Assembly • C# • Qt

### FRAMEWORKS

Spark • Android • Theano  
Intel SSE Intrinsics • Allegro  
OpenMP • Pthread • Git

### TOOLS

Cadence • Unix • Vim • Eclipse

## AWARDS

National Intel Scholarship  
Regional Silicon Valley Eng. Council  
Regional Top Senior Thesis - FHS

## EXPERIENCE

### ZSPACE | SOFTWARE ENGINEERING RESEARCH INTERN

May 2016 – Aug 2016 | Sunnyvale, CA  
Python • C++ • C#

- Utilized deep convolutional neural networks to design a gaze tracking system compatible with polarized 3D glasses
- GPU optimized using the Theano machine learning framework
- Trained on over 10GB of data after instructing 36 participants on proprietary data collection application
- Configured infrared cameras to classify images based on 2D pupillary angle

### INTEL | UNDERGRADUATE TECHNICAL INTERN - CLIENT R&D

May 2015 – Aug 2015 | Santa Clara, CA  
Java • C++ • C

- Implemented a general solution to local big data processing on Android devices
- Realized an application of the generalized map reduce framework with k-means clustering to reduce the local data footprint on servers
- Full stack development from the NDK to IPC to UI
- Parallelized using Pthreads and insured thread safety using mutexes

## PROJECT EXPERIENCE

### LOW COST RELIABLE LOCALIZATION OF DRONE

Python

- Objective to create a low cost alternative to a Vicon Motion capture system to enable indoor aerial delivery via quadrotor drone
- Only requires a standard HD webcam and an array of AR tags, thereby facilitating total cost reduction
- Multiple AR tags rigidly connected to an origin tag provide redundancy, allowing for rigid body transforms to locate the quadrotor in global coordinates
- Acquired a single pose estimation with the ROS package `ar_track_alvar` and used Mavros to communicate to the Pixhawk PX4 2.4.8 flight controller

### NEUROEVOLUTION ON NEURAL NETWORK

C++

- Goal to teach virtual agents how to defend and fight in free-for-all combat
- Created neural network framework de novo to create FFNNs and RNNs
- Devised a genetic algorithm and a fitness test to train the neural networks
- Employed the Allegro framework to make the GUI simulating the fitness test

### ARTIFICIAL INTELLIGENCE | VARIOUS TECHNIQUES FOR A PACMAN AI

Python

- Q-learning, value iteration, policy iteration, and policy extraction to determine which action Pacman should take given state-actions pairs
- Bayes nets for inferring data about ghosts with super powers
- Hidden Markov models used to track invisible ghosts using particle filtering
- Minimax with alpha-beta pruning and A\* path finding with consistent heuristics

## AFFILIATIONS

2016 National Camp Kesem  
2015 Top 25% Eta Kappa Nu Electrical Engineering Honor Society Member  
2013 National Academic All American (Water Polo)