

Alvin T. Vuong

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Education

University of California - Los Angeles

(expected) 2013 - 2017

B.S. in Computer Science - Minor in Cognitive Science

GPA: 3.227

Relevant Coursework:

* = In Progress

- Intro to Computer Science (CS 31 & 32)
- Intro to Computer Organization (CS 33)
- Software Construction Laboratory (CS 35L)
- Operating Systems (CS 111)
- Programming Languages (CS 131)
- Intro to Linguistic Analysis (Ling 20)
- Intro to Cognitive Science (Psych 85)
- * Sensation and Perception (Psych 120B)
- * Neuroethics (Psych 188A)
- Algorithms & Complexity (CS 180)
- Logic Design of Digital Systems (CS M51A)
- Fundamentals of Artificial Intelligence (CS 161)
- Linear Algebra & Discrete Structures (Math 33A & 61)
- Formal Languages and Automata Theory (CS 181)
- Advanced Game Development for Virtual Reality (CS 188)
- * Digital Design Laboratory (CS M152A)
- * Finance and Marketing for Engineers (ENGR 111)

Extracurricular Activities:

- UCLA Archery Team | UCLA CS:GO Gold Team
- UCLA Association of Computing Machinery - Artificial Intelligence Club
- UCLA Cognitive Science Student Association

Coursera.org

- Machine Learning – with Andrew Ng at Stanford University (September 2014)
- Intro to Programming with MATLAB – with Fitzpatrick, Ledeczi, Tairas at Vanderbilt University (August 2015)

edX.org

- The Science of Everyday Thinking – UQx – Think101x (December 2015)
- * Artificial Intelligence – BerkeleyX – CS188x_1 (January 2015)

Deer Valley High School

2009 – 2013

High School Diploma – Class Valedictorian

GPA: 4.522

Honors & Awards:

- Platinum Renaissance (Honor Roll GPA 4.0+) 2009 - 2013
- AP Scholar with Distinction
- CSF Lifetime Member Award
- Key Club Scholarship Recipient (\$1,000)
- DVHS Male Student Athlete Scholarship Recipient (\$2,500)

Activities & Societies:

- Academic Challenge and Enrichment (ACE) Academy
 - Computer Science Major
- California Scholarship Federation - Treasurer
- National Honors Society - Founding Treasurer
- Key Club International
- DVHS Varsity Tennis & Junior Varsity Baseball

Experience

Rissman Memory Lab | Research Assistant

June 2015 – Present

rissmanlab.psych.ucla.edu

Neural Correlates of Fluid Intelligence & Depression using the Human Connectome Project

June 2015 – Present

- Working with Niccolo Reggente under Dr. Jesse Rissman on using functional magnetic resonance imaging (fMRI) and diffusion tensor imaging (DTI) data from the Human Connectome Project (HCP) to account for individual differences in fluid intelligence, memory strength, and reward.
- Currently writing Matlab and shell scripts to perform complex analyses over many subjects and examining the correlations to their behavioral scores on the Penn Progressive Matrices IQ test and various NIH Toolbox tasks.

Avatar Learning in Virtual Environments

Jan 2016 – Present

- Working under Joey Essoe and Niccolo Reggente on investigating the cognitive and neural mechanisms of learning that occurs within virtual reality and their implications for future training and educational purposes.
- Currently undergoing MRI safety orientation training as well as human participant ethics/procedures training in order to assist in the process of running participants.

USA Archery | Electronic Scoring Team

June - July 2014-16

- Prepared and helped manage electronic scoring systems for two USA Archery tournaments: SoCal Showdown & U.S. National Target Championships/Easton JOAD Nationals.
- Shadowed the use of Ianseo and Rcherz, two archery scoring database systems (SQL-based) that contained the scoring data of archers at the competitions.

Bagel Street Café | Manager Assistant

2010 - 2012

- Handled store maintenance, calculated daily sales/monthly payroll, performed basic accounting tasks with the use of QuickBooks, organized receipts and other important files.

Projects

M.O.Lm.

Oct. 2015

devpost.com/software/m-o-l-m

- Full-body virtual reality experience, built with a Myo Armband (leg movement), an Oculus Rift (head tracking), and a Leap Motion (hand tracking).
- Handled the unit testing of the Myo, Oculus, and Leap integration with Unreal Engine 4.
- Implemented a workaround for leg movement and body orientation in Lua using the Myo SDK to trigger in-game movement based on acceleration and gyroscopic data.
- Map and Blueprint (Unreal game logic) creation using UE4 to create a demo game world for project showcase.

ObjectRekt

June 2015

devpost.com/software/object-rect

- Automated thermal tracking camera powered by OpenCV object recognition and the FLIR Lepton, a longwave infrared thermal imager, mounted on a dual-axis rotating servo system, connected to a Raspberry Pi.
- Observes the scene and tracks a presenter's location, panning to the proper locations.
- Attempted to incorporate "smart recording," where camera will pan to areas suggested by the presenter's gestures and actions (i.e. pointing to the projection, pan to slide).
- Oversaw the onboard Raspberry Pi implementation of the algorithms used for servo control and quick thermal tracking.

Playlist2000

Jan. 2015

devpost.com/software/playlist2000

- Voice-controlled music queuing interface, built using Windows Speech Recognition, Vocola, and Python.
- Created Vocola voice instructions used to interact with a Python programming interface in order to queue Windows batch scripts that would then play songs in a specified order.

EmoCar

Oct. 2014

devpost.com/software/emocar

- Mind-controlled Arduino-based rover controlled by an Emotiv EPOC EEG neuroheadset.
- Handled the decryption and visualization of the headset data using Emokit, an open-source driver for raw data access, and Pygame.
- Set up a simple brain-computer interface in Python for interpreting brain signals as robotic motor functions.
- Winner of MuleSoft's Most Connected Hack at Cal Hacks.

Hartbeat

Sept. 2014

devpost.com/software/hartbeat

- Heart rate-based First Person Shooter built using Unreal Development Kit and an Arduino optical heart rate sensor.
- Wrote UnrealScript that varied the bullet spread in-game based on the player's heart rate.
- Utilized Flash ActionScript to dynamically alter the Heads-Up Display accordingly.
- Map creation using UDK to test spread dynamics and other various functionalities (player movement, etc.).

FindAR

Aug. 2014

devpost.com/software/findar

- Augmented reality application using an Oculus Rift, a webcam, and OpenCV to facilitate real-world search (visual filters & face/object recognition).
- Developed an API in C++ for handing web socket input to control the application using a Pebble Smartwatch.
- Used OpenCV C++ library to handle webcam feed and applied color isolation filters to ease search for lost objects.
- Awarded First Place Overall & Top Oculus Rift Hack at Hero Hacks, a wearable technology hackathon.

TripleXArchery

July 2014

triplexarchery.herokuapp.com | devpost.com/software/triplexarchery

- Digital notebook allowing archers to store their scores online in one, impossible-to-lose place.
- Implemented the back-end PostgreSQL database management interface to store users' scores.
- Incorporated the Java Play! Framework to weave the web application together.

USB Attack & Defense

Feb. 2013

- Created an application that detects the connection of any USB device.
- Researched various methods of corporate espionage through the use of USB ports, and showed whether each method was effective or not.
- 2nd Place at the Contra Costa County Science and Engineering Fair

Derivations from Basic Quantum Principles

Feb. 2012

- Developed a rational way of expressing the mathematical relationships between various quantum phenomena.
- From an educational standpoint, this helped students understand the concepts better: proved by quiz scores from two separate high school classes, where one learned the traditional way and the other the new method.
- 2nd Place at the Contra Costa County Science and Engineering Fair
- Winner of the Mu Alpha Theta Award

Academic Presentations

Vuong, A.T., Harte, E.M. *CS is Cool: A Hacker's Life Beyond High School.* – Deer Valley High School ACE Academy (March 27, 2015)