Alvin T. Vuong

alvin.t.vuong@ucla.edu | +1 (925) 470-7297 | imatv.me | github.com/Alvin-Vuong

Education

University of California - Los Angeles **(expected) 2013 - 2017**

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

GPA: 3.216

Relevant Coursework: * = In Progress

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

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 (October 2015)
- * Electronic Interfaces – BerkeleyX – EE40LX (October 2015)
- * Artificial Intelligence – BerkeleyX – CS188x_1 (October 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

- Working with Niccolo Reggente under Dr. Jesse Rissman on using diffusion magnetic resonance imaging (dMRI) 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 using probabilistic tractography over many subjects' dMRI data and examining the correlations to their behavioral scores on various IQ tests and tasks.

USA Archery | Electronic Scoring Team **June - July 2014/15**

- 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

ObjectRekt **June 2015**

challengepost.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**

challengepost.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**

challengepost.com/software/emocar

- Mind-controlled Arduino-based rover controlled by an Emotiv EPOC EEG neuroheadset.
- Handled the decryption of the headset data using Emokit, an open-source driver for raw data access, and graphed the EEG data using 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**

challengepost.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.

FindAR **Aug. 2014**

challengepost.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 | challengepost.com/software/triplexarchery

- Digital notebook allowing archers to store their scores online in one, impossible-to-lose place.
- Worked on 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)