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: 3.227

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)
- * Computational Genetics (CM 124)
- 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)
- Neuroethics (Psych 188A)
- * Cognitive Psychology (Psych 120A)
- * Intro to Phonetics (Ling 103)

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 (March 2016)

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 –
rissmanlab.psych.ucla.edu

Neural Correlates of Fluid Intelligence & Depression using the Human Connectome Project   June 2015 –

- 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 test and various NIH Toolbox tasks.

Avatar Learning in Virtual Environments   Jan. 2016 –

- 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 MRI safety certified and CITI-trained (basic, social/behavioral, HIPAA), I assist in the process of running and scoring 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.

Conference Presentations

Vuong, A.T., Reggente, N., Rissman, J. (2016) *Neural Correlates of Fluid Intelligence via Functional and Structural Network Connectivity Measures.* Poster to be presented at UCLA Psychology Undergraduate Research Conference and UCLA Undergraduate Research Week Poster Day, Los Angeles, CA.

Vuong, A.T., Aniwar, D., Carney, J. (2013) *USB Attack and Defense*. Poster presented at Contra Costa Science and Engineering Fair, Antioch, CA. 2nd Place.

Vuong, A.T., Aniwar, D., Carney, J. (2012) *Derivations from Basic Quantum Principles*. Poster presented at Contra Costa Science and Engineering Fair, Antioch, CA. 2nd Place, Mu Alpha Theta Award.

Talks

Vuong, A.T., Rotman, J.N. *CS is Cool: Technology & Problem Solving.* (March 24, 2016) Talk to be presented at Deer Valley High School Robotics and Physics Classes, Antioch, CA.

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

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 & Top Oculus Hack at Hero Hacks, a wearable technology hackathon. Devpost Staff Favorite.

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.