JONATHAN NGUYEN

(408) 796-1671 | nguyenjonathan556@gmail.com

EDUCATION

University of California, Los Angeles: Electrical Engineering — Graduation: March 2021

- GPA: 3.841

WORK EXPERIENCE

Digital Communications Intern, Aerospace Corporation – El Segundo, CA — June 2020 – Sept. 2020

- Researched and simulated digital radio signals for use in deep neural network classifier
  - Utilized GNU Radio, USRPs, and Python to generate P25, DMR, NXDN, DSTAR, and YSF signals
  - Generated random signal bursts to serve as negative examples for the classifier
- Built framework for integrating a USRP into a Modular Open Radio Frequency Architecture (MORA) system
  - Researched MORA standard and facilitated device communication with Flask Webservice
  - Learned about VITA-49 standard to handle / parse VRT packets on sockets

Lab Intern, Physical Optics Corportation – Torrance, CA — June 2019 – Sept. 2019

- Researched and integrated IEEE 802.11n error correction protocol in simulations
  - Collaborated to implement Information Bottleneck LDPC decoder on Xilinx FPGA
  - Performed preprocessing of data using Python and created parallelized simulations using C++
  - Achieved frame and bit error rate (FER / BER) rivaling current standard only using 4-bit quantization

Intern, City of Fremont ITS Department – Fremont, CA — July – Sept. 2017

- Managed city-wide replacement of old computers and integration of new hardware
- Created and maintained standardized OS images for rollbacks and new deployments

PROJECTS AND ACTIVITIES

UCLA Communications Systems Laboratory Research Assistant — April 2019- Present

- Current and Past Projects:
  - Simulation of Low-Density Parity Check (LDPC) code for use in MLC Flash Memory
  - LDPC decoding using Information Bottleneck for use in 5G technology
  - Simulation and design of hybrid Free Space Optical and Radio Frequency transmission scheme
  - "Comparison of Integrated and Independent RF/FSO Transceivers on a Fading Optical Channel"

UCLA IDEA Hacks — Jan. 2018

- Collaborated in a team for 36 hours to create a wearable, gesture-based wireless controller
- Utilized flex resistors and accelerometer to track hand movement and control a LED

Boy Scouts of America — Aug. 2013 - Nov. 2017

- Eagle Scout earned Sept. 20, 2017 by leading scouts to build bulletin boards for local temple

RELEVANT COURSE WORK AND SKILLS

Relevant Course Work	Skills
Data Structures and Algorithms	Object Oriented Programing C++ and Java
Machine / Deep Learning (2 classes)	Bash and Linux
Image and Speech Processing Design	MATLAB
Digital Signal Processing	Python
Communication Systems	GNU Radio
Probability and Statistics	Software Defined Radios (SDRs)
Analog Circuit Analysis	LateX
Electromagnetics and Waves	PCB design through Eagle's software
Feedback Systems	Oscilloscopes, and function generators
Information Theory (Graduate)	