PHILIP TRAN BA VO

1105 Cantara Court ⋄ San Jose, CA 95127
(408) 386-6142 ⋄ philiptranbavo@gmail.com
https://www.linkedin.com/in/philipvo

OBJECTIVE

Engineering position utilizing software, firmware, and hardware skills and computer science knowledge to develop and design scientific tools for research.

EDUCATION

University of California, Davis September 2013 - in progress
M.S. in Electrical and Computer Engineering
Researched Vehicular Ad-hoc Networks (VANET) and Intelligent Transportation Systems (ITS)

University of California, Davis September 2009 - September 2013
B.S. in Computer Engineering GPA: 3.54
Dean's List: Fall 2009 - Winter 2011

SKILLS AND QUALIFICATIONS

Adept in several programming languages (C, C++, TCL, Python, Java, ARM, x86) within various developing environments including Arduino, Eclipse, OMNeT++, Keil μVision, and Visual Studio.

Experienced with object-oriented programming for complex software with a deep understanding of computer architectures, algorithms, and data structures. Experienced with C++ Standard Template Library and using open-source scientific libraries (Boost, Eigen, OpenGL).

Experienced developing software/firmware under a variety of Operating Systems such as Unix, Linux (Ubuntu, Red Hat, Fedora, Kali), and Windows.

Very experienced working with and developing systems that utilize various embedded microcontrollers such as Arduino Due and Stellaris boards (LM3S8962, LM3S2110).

Knowledgeable about network engineering principles including several networking protocols (especially IEEE 802.11p) and architectures, resource management, information security, and cryptography.

Proficient in Verilog Hardware Description Language. Experienced using latest FPGA development tools (Vivado, Quartus Prime), and several modern FPGA platforms.

Other skills:

- Experienced using software versioning and revision control systems such as Git.
- Extensive use of VMWare for virtualizing different Operating Systems.
- Scientific tools: LaTeX, MATLAB.
- Fluent in Vietnamese as a second language.

ENGINEERING PROJECTS

VENTOS: Vehicular Network Open Simulator UC Davis, Spring 2014 - Fall 2015

- Used OMNeT++ and SUMO (Simulation of Urban MObility) to simulate multi-modal traffic (cars, pedestrians, bicyclists) in a VANET where each entity has some wireless communication device that uses IEEE 802.11p to beacon vehicle information (position, velocity, etc.).

- Designed and programmed a new traffic controller that can read the beacons to sense the location of each entity and update the queues of each lane in an intersection. This allows for the controller to optimally adjust the green time and traffic signal transitions, effectively decreasing wait time.
- Programmed different traffic signal controllers (fixed-time, actuated, adaptive-time) for comparison with the newly designed traffic controller that is able to consider pedestrians and bicyclists as part of the signal timing plan alongside vehicles, improving green transportation modes.

Robotic Systems UC Davis, Spring 2014

- Designed and programmed a robotic system consisting of a fixed base station and a free-moving miniature car with a gripping arm, representing a garbage collection and sorting system.
- Using sonar and color sensors, it can pick up different colored objects and sort them accordingly.

NATCAR Design Project UC Davis, Summer 2013

- Designed and constructed a miniature autonomous race car capable of navigating a track. The car uses a closed-loop DC motor control to control the speed, a servo to control the steering angle, and an optical sensor to sense the track.
- Programmed the car to adjust the steering angle based on the image captured from the optical sensor to keep the car aligned with the track. The speed was also programmed to decrease on sharp turns to keep the car from drifting offtrack and to increase on straightaways.

Design and Optimization of Embedded Computing Systems UC Davis, Spring 2013

- An iOS app was developed to use an iPhone's accelerometer to perform dead reckoning.
- Programmed the app to record the phone's acceleration as it was moved around. The acceleration was then integrated twice to attempt to calculate the displacement from the initial position.

Embedded Systems UC Davis, Winter 2013

- Programmed two different Stellaris microcontrollers for projects which used an XBee as a means of sending signals and data wirelessly between the boards.
- Projects include: sending, receiving, and decoding Morse code, IR and accelerometer sensing, remotely controlling servos, and wireless communication.

Digital Systems I, II UC Davis, Summer 2011 & Spring 2012

- Using sequential and combinational logic designs, several ICs were connected on a breadboard to produce the circuitry for a die game called 15.
- Used Quartus to run functional and timing simulations of digital circuits written in Verilog for an Altera DE2 board. Designs include: counters, RCA, multiplier, RAM, ALU.

RELEVANT COURSES

Undergraduate courses:
Circuits, Computer Networks, Software Development and Object-Oriented Programming, Computer Organization and Machine Dependent Programming, Data Structures and Programming, Operating Systems and System Programming, Programming Languages, Parallel Computer Architecture, Digital Systems, Embedded Systems.

Graduate courses:
Robotic Systems, Error Correcting Codes, High-Performance Computer Architecture and Implementation, Networking Architecture and Resource Management, Design and Optimization of Embedded Computing Systems, Introduction to Digital System Testing, Advanced Computer Architecture, Theory of Computation, Design and Analysis of Algorithms, Computer and Information Security, Code Generation and Optimization.