Steven Yue

607-279-4462 | yuedongze.github.io | dy85@cornell.edu

| ASIC/FPGA DESIGN | BARE METAL EMBEDDED APPLICATION | CHIP-LEVEL PROTOCOL | LINUX | CROSS-PLATFORM FIRMWARE | PYTHON SCRIPTING | INTER-PROCESS COMM. | SENSOR BASED DATA ACQUISITION | WEB APP BACKEND | DATABASE | WEB APP FRONTEND | DATA VISUALIZATION |

Scope of Knowledge

Profile

Full-stack embedded **rapid prototyper** for 3+ years. Confident with bringing up working prototypes of **sensor-driven IoT solutions** on Raspberry Pi, BeagleBone Black, Arduino or PIC. Solid understanding of **chip-level** (I2C, SPI, UART) and **IoT** (MQTT, RPC) **protocols**. Diversified experience from **data acquisition** to **visualization**. Motion graphics designer with After Effects. Freelance Photographer.

Education

Cornell University, BS Electrical and Computer Engineering, GPA 3.701 — **Est. Dec 2017**

Industry Experience

HARDWARE TEST ENGINEERING INTERN, APPLE INC; CUPERTINO, CA – SUMMER 2017

Interned in the Hardware Test Engineering group at Apple that mainly designs firmware/hardware test fixtures to validate the proprietary communication modules.

ELECTRICAL SUB-TEAM MEMBER, CORNELL UNIVERSITY UNMANNED AIR SYSTEMS; ITHACA, NY – 2015-PRESENT

Member of Cornell's UAV project team for 2+ years. Designed and engineered an antenna tracker that pivots the directional comms antenna on the ground to track the aircraft during flight to ensure connectivity. Helped interfacing with the onboard camera system. Filmed and produced a team promotional video that raised $18,000 in a month.

TECHNICAL MARKETING ENGINEERING INTERN, SONY CORP; ATSUGI, JAPAN – SUMMER 2016

Proposed and implemented a future wireless camera management solution on Raspberry Pi from building custom drivers for proprietary USB protocol to integrating camera commands with a Flask server. Arranged technical promotion support of Sony's professional network camera products with demo videos.

Projects

INTELLIGENT HOME SECURITY SYSTEM [RASPBERRY PI] [C, PYTHON, SQLITE, JAVASCRIPT]

A smart home security solution on Raspberry Pi that surveils the surrounding with a live security footage, detects intrusion with sensors and controls smart home appliances through sockets. The system provides a lightweight web UI for users to set security preferences and see live footage.

ANALOG VIDEO GAME CONSOLE [PIC32] [C]

A video game console powered by PIC32 micro-controller. The DMA, SPI and Timer modules synthesize a 256x200 B/W analog composite video signal for display. Customized graphic library supports fast rendering of Bezier curves and circles. The system comes with a proprietary game engine in C that allows rapid development of scenes and sprite objects.

STOCHASTIC GRADIENT DESCENT ACCELERATOR [ASIC] [PYTHON, VERILOG, ASSEMBLY]

A hardware accelerator that speeds up the canonical Stochastic Gradient Descent process by 50 times on a Tiny RISC-V microprocessor. The system leverages tricks such as fixed point representation, Goldschmidt's Division Algorithm, Horner's method to guide MNIST dataset through a Softmax filter.