

Tyler D Jones

CONTACT INFORMATION

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WORK EXPERIENCE

FFmpeg

Google Summer of Code Participant – Vorbis Encoder

Feb 2017 – August 2017

Improved the encoding quality and speed of FFmpeg's native Vorbis encoder by redesigning major components and implementing a new psychoacoustic model.

- Built a custom psychoacoustical model capable of detecting transient signals and dynamically switching encoding modes.
- Implemented noise normalization to generate a gaussian noise profile and rewrote residue encoding to minimize quantization error.
- Rewrote the stereo coupling to dynamically switch between various lossy and lossless modes.
- Added foundational support for arbitrary channel mappings.

OTHER PROJECTS

Flying Drone

Built a semi-autonomous drone from bare components and developed an off-machine flight controller.

- Utilized radio communication for transmitting flight directions and data between an embedded linux device and embedded microcontroller.
- Implemented custom PID controls to maintain flight stability using on-board sensor data.

Radio Com

Built an embedded device capable of interfacing with Linux devices and Android phones for communicating over long-range encrypted radio.

- Developed a secure and error-resistant protocol for communication over USB and over LoRa radio.
- Developed a cross-platform C++ application and GUI for end-to-end encrypted communication.
- Wrote linux drivers to emulate a virtual serial port that supports data and control requests over USB.

Project Armoire

Built a homework and test platform for students learning to code.

- Utilized Docker and AppArmor to securely execute arbitrary student code and run unit tests in light-weight sandboxes behind a REST API.
- Automatically cross-referenced code submissions to detect code-similarity and probability of plagiarism.
- Built a React user interface using capable of running both on the desktop and in the browser.

COLLEGE EDUCATION

Colorado Mesa University, Grand Junction, CO

B.S., Computer Science GPA - 4.0

Aug 2014 – May 2018

Colorado School of Mines, Golden, CO

Chemical Engineering GPA - 3.83

Aug 2015 – May 2016

Received recognition for developing a simulation engine for municipal waste reactors that could be embedded within existing data work-flows for energy companies and researchers.

TECHNICAL SKILLS

Languages: C, C++, Python, JavaScript, Go

Architectures: ARM, AVR, PIC

Tools: Git, Valgrind, GCC/LLVM

Protocols: LoRa, USB, BTLE, Zigbee, TCP/IP

Other Knowledge: Kernel Development, Embedded Linux, FreeRTOS, SQL, DSP