Tyler D Jones

Contact Information

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Work Experience

AMERGINT Technologies

Development Engineer, Launch/Range Systems **July 2018 – Present**

Designed, implemented, and tested mission-critical and safety-critical systems written in C++ and Python based on customer specifications and requirements.

- Lead the design and development of simulation and hardware-in-the-loop testing platforms for active development of prototype defense technologies.
- Designed and implemented next-generation software-based LDPC decoders capable of multi-gigabit downlink rates.
- Optimized the performance of telemetry processing systems by up to 700% while improving meaningful test coverage and documentation by 35%.
- Designed and implemented the rearchitecture of IRIG 106-compliant Chapter 10 data recorders for rapid development of new recorder product lines.
- Performed certification and factory acceptance testing of multi-million dollar satellite test systems.

FFmpeg

Google Summer of Code Participant – Vorbis Encoder **Feb 2017 – Aug 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 perceived gaussian noise profile and designed residue encoding to minimize quantization error.
- Rewrote the stereo coupling to dynamically switch between various lossy and lossless modes.

Other Projects

Flying Drone

Built an autonomous drone from bare components and a custom real-time operating environment.

- Utilized FHSS with a custom packetized protocol for efficient command and control, and telemetry in populated and noisy ISM bands.
- Designed kernel drivers to minimize the latency of subsystem components in centralized ground stations.
- Developed full environment and sensor simulations for faster iteration of closed loop controls and vehicle localization algorithms.

Project Armoire

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

- Utilized Docker and AppArmor to securely execute arbitrary code and run unit tests in light-weight sandboxes behind a RESTful API.
- Automatically cross-referenced code submissions to detect code-similarity and probability of plagiarism based on a corpus of previous assignments.

College Education

Colorado Mesa University, Grand Junction, CO

B.S. Computer Science GPA - 4.0 **Aug 2014 – May 2018**

Technical Skills

Languages: C, C++, Python, Rust
Tools: Git/SVN, Valgrind, GCC/LLVM, perf, eBPF
Other Knowledge: Linux and RTOS Kernel Development, Embedded Linux, Software-defined networking