KASH PIRANI

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EXPERIENCE

Embedded Audio Software Developer
QUALCOMM
Jan-Apr 2019
Markham, ON

- Worked on automotive Android, modifying user and kernel-space code
- Created an Android app for customers to test/demo a custom audio effect library
- Wrote a C driver and modified the device tree to support an I^2C I/O expander
- Modified codec drivers to support a gpio toggled mute, and created a path in the audio stack for user-space control via Android's setParameters call
- Expanded C device driver to support playback/record paths for an A2B slave board
- Scripted in python to classify and fix 3000+ compiler and MISRA warnings
- Independently made a python script to format C files according to a style guide

Firmware Developer
FORD MOTOR COMPANY
May-Aug 2019
Ottawa, ON

- Developed and integrated custom C code with an RTOS
- Modified drivers in C to support CAN FD and created LUTs to route the CAN data
- Improved download speeds over CAN by 246% by removing excessive handshaking and reducing time between CAN frames
- Implemented a custom protocol for inter-chip communication over SPI/UART
- Debugged software running on target over JTAG using a hardware debugger
- Wrote python scripts to insert data into a flashable binary file, and modified the target's boot sequence to read back this data from a specified address

Time Sync Project Lead & Mentor
WATONOMOUS
Sept 2018-Present
UWaterloo, ON

- Wired FLIR Blackfly cameras to trigger with a PPS signal from a GPS
- Created custom adapters to relay PPS/NMEA data from a GPS to Velodyne LIDARs
- Currently configuring a GPS synced PTP server using a Raspberry Pi

SAM Robot Electrical Lead
UW NANOROBOTICS GROUP
Sept 2017-Present
UWaterloo, ON

- Designed a PCB to house MOSFETs that allowed an Arduino to pulse solenoids
- Wrote an Arduino script to interface with a custom path-finding program allowing for autonomous movement of a 300 micron magnetic robot
- Placed 2nd at the 2018 ICRA Microrobotics Challenge in Brisbane, Australia

PROJECTS

WeathAR
AR WEATHER APP
PennApps XVIII
UPenn, Philidelphia

- Android application that would overlay weather and hazard conditions in AR
- Wrote a RESTful API to fetch/parse weather data for a user's current location
- Simulated weather conditions using an embedded Unity activity and ARCore

SKILLS

Languages

- C++
- C (embedded)
- Python
- Java (app dev)
- ARM Assembly
- VHDL
- Batch and VBS

Technologies

- CAN, I2C, UART, SPI
- Altera FPGAs, STM ARM dev boards, Arduino, Raspberry Pi
- Lab experience with an Oscilloscope
- JTAG Debuggers

Software

- Linux kernel and command line tools
- Android, Android Studio, a2b, fastboot
- Git, SVN, Perforce
- JIRA, Jenkins, Gerrit
- Altium CircuitMaker
- DipTrace
- STM CubeMX
- GreenHills MULTI

EDUCATION

UNIVERSITY OF WATERLOO

Candidate for a Bachelor's in Computer Engineering

Cumulative GPA: 3.9
Dean's Honor List