KASH PIRANI

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EXPERIENCE

NVIDIA
May-Aug 2020
Autonomous Vehicles Embedded Software Intern - Python, Docker, Bazel
Santa Clara, CA

- Created a framework in Python which collects GPU/CPU memory usage and perfomance data from a C/C++ SDK, generates spreadsheets, and uploads them to Google Drive - allowing us to easily identify poorly performing APIs.
- Integrated this system with an in-house CI pipeline by patching docker images with required dependencies, modifying test generation scripts, and updating CMake and Bazel build files - thus automating performance analysis for the SDK.

SIBROS TECHNOLOGIES INC
Sept-Dec 2019
Firmware Development Intern - C/C++, Python, Bazel, Docker
San Jose, CA

- Helped architect a modular bootloader design by restructuring code layers, drivers, and linker/build scripts, which reduced the time to develop a bootloader for new hardware from three weeks to a single week.
- Wrote MISRA C compliant CAN, flash, watchdog, timer, and port/pin abstraction interfaces and the corresponding drivers for NXP, Infineon, and STM hardware variants - commonizing the top layer code across all boards
- Proposed a HIL testing setup, and wrote a modular Python library to interface with the hardware and manage test suite logic through PyTest. This enabled regression testing to be performed for the first-time on bootloaders.
- Participated in test-driven development, and achieved 100% branch and line coverage on all C code written by making use of the CMock and Unity test frameworks and the consistency from executing in Docker containers.

QUALCOMM
Jan-Apr 2019
Embedded Audio Software Developer - C, Java, Python, Android
Markham, ON

- Developed and tested MISRA compliant C driver code that implemented a fast mute feature on a codec using I2C and GPIO controls, with the goal of preventing unwanted speaker noises caused by automotive system failures.
- Expanded a DSP driver to support playback and record paths for new generation hardware, which enabled more intensive audio development and testing to be performed.

FORD MOTOR COMPANY
May-Aug 2018
Firmware Developer - C, Vector AUTOSAR, Greenhills MULTI
Ottawa, ON

- Developed and integrated custom C drivers and applications with an AUTOSAR compliant RTOS for an ECU that handled message routing and over-the-air transmissions.
- Improved CAN download time by 246% by reducing delay between frames and limiting excessive handshaking.
- Implemented a state-machine in C for inter-chip communication over SPI/UART to allow for split workload among two processors on a single board.

WATONOMOUS - SAE AUTODRIVE CHALLENGE
Sept 2018-2020
Director of Electrical Division - Python , ROS
UWaterloo, ON

- Managed and coordinated 4 subteams consisting of over 20 members, with the goal of aligning electrical division OKRs while facilitating cross-divisional development of our autonomous vehicle.

AUTOMATIC GUITAR TUNER
May-Jul 2019
Personal Project - C, DIPTRACE

- Implemented a Fast Fourier Transform on a TI MSP430 to detect the frequency of a string plucked on a guitar, and created a feedback algorithm to tune the string by rotating a stepper motor attached to the peg.

EDUCATION

UNIVERSITY OF WATERLOO
2017 - 2022
Candidate for a Bachelor's in Computer Engineering

- GPA 3.9 (Dean's Honour List)
- Relevant Courses: System Programming and Concurrency, Compilers, Data Structures and Algorithms