Kenneth Hung

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Languages: C++, C, Python, Java, ARM, Verilog, LLVM IR, HTML/CSS/JavaScript

Technologies & Tools: Git, GDB, Jenkins, Bash, Bazel, FreeRTOS, UART, STM32, FPGA, MATLAB, Arduino, Raspberry Pi, React, Redux, Node.js, Express.js, Firebase, MongoDB, MySQL, Google Cloud API, Fusion 360

Relevant Experience

Firmware Engineer | **Sibros** *Apr 2022 – Jul 2022*

- Integrated Over-The-Air (OTA) vehicle software on Telematic Control Units (TCUs) with 100% unit test coverage
- Implemented a real-time embedded GPS data parser with a FreeRTOS handler task on TCUs
- Designed a FreeRTOS ESP32 WiFi driver for OTA connectivity with various Sibros applications

Compiler Software Engineer | **Huawei** *Sept 2021 – Dec 2021*

- Contributed to the development of a LLVM-based compiler targeting mobile, network and server hardware
- Designed kernel tests to optimize matrix operations using the ARM Scalable Matrix Extension with C intrinsics
- Modified a LLVM compiler pass which efficiently transforms matrix operations resulting in 8x faster runtime than unoptimized code and over 3x faster than previous optimizations

Hardware Engineer - Design Verification | **Qualcomm** *Jan 2021 – Apr 2021*

- Contributed to the verification of the Mobile Display Subsystem in the Snapdragon SoCs
- Developed scalable C++ tests to verify RTL connections using SystemVerilog Assertion-based verification
- Debugged RTL designs, verification tests, and coverage issues with Synopsys VCS, VC Formal and Verdi

Full-Stack Developer | **Pllanet** *May 2020 – Aug 2020*

- Developed products autonomously in a fast-paced startup at Pllanet, a chatting platform for language learning
- Optimized database processing time by decreasing query time by over 20%
- Leveraged Firebase and Express.js for variable back-end workloads with an interactive front-end UI using React

Projects

Mailbox Task Manager | **C** *Jan 2022 – Apr 2022*

- Implemented a task manager with mailboxes for inter-task communications through UART interrupts
- Designed a preemptive multitask kernel with a FIFO scheduler to ensure proper task management
- Integrated memory allocation using a first-fit scheme with memory defragmentation and ownership

Rubik's Cube Solver | **Youtube** · **GitHub** | **Python, Arduino** *Apr 2020 – Jun 2020*

- Mechanical 3x3 Rubik's Cube solver which interfaced with an Arduino using a custom serial protocol in Python
- Push/hold/rotate system with mechanical arms and servos allow for accurate rotation of cube sides

Education

University of Waterloo *Waterloo, ON*

Candidate for B.ASc in Computer Engineering *2019 – 2024 (Expected)*

Relevant Courses: Data Structures & Algorithms, Real-Time Operating Systems, Systems Program & Concurrency, Computer Architecture, Digital Circuits & Systems, Computer Networks, Database Systems

National University of Singapore *Singapore, Singapore*

International Exchange Program – Faculty of Engineering *Aug 2022 - Present*

Awards: President's International Experience Award