Masaad Khan

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WORK EXPERIENCE

Intel **May 2022 – August 2022**
Xeon SoC Pre-silicon Verification Intern (Full-time) *Remote*

- Completed working voltage sensor and SPI drivers despite a complicated bug in Tesla's SPI silicon
- Implemented and rigorously tested a software architecture designed to funnel temperature and voltage data over SPI
- Created a python script able to generate QSPI images working around the LittleFS library, which used linux-like commands

Tenstorrent **January 2022 – May 2022**
Design Verification Intern – RISC-V CPU Team (Full-time) *Austin, TX*

- Compiled Google's open-source System Verilog RISC-V DV toolkit and modified it to generate tests useful to Tenstorrent
- - familiarized myself with UVM
- Migrated Tenstorrent's enhancements to the vector, floating point, and more units to Google's head commit
- Produced testbenches using RISC-V DV and ran them in VCS and whisper (RISC-V ISS) to ensure no system breaking change
- Generated diagrams in React using Python and data from SQL to describe our RTL interfaces;
- streamlines testbench generation

Tesla **January 2021 – August 2021**
Silicon Development Intern – Autopilot Hardware Group (Full-time) *Palo Alto, CA*

- Completed working voltage sensor and SPI drivers despite a complicated bug in Tesla's SPI silicon
- Implemented and rigorously tested a software architecture designed to funnel temperature and voltage data over SPI
- Improved a python script to recursively parse generated protobuf, automated sending protobuf messages by filling a
- .JSON/.proto file, and synced this script as well as the hardware based on messages received over UART
- Created a python script able to generate QSPI images working around the LittleFS library, which used linux-like commands

- Gained experience writing firmware running ARM CMSIS RTOS wrapper for FreeRTOS, including drivers, interrupt handlers, etc

RESEARCH

Wireless Networking and Communications Group - UT Austin **August 2021 – Present**
Undergraduate Researcher *Austin, TX*

- Generated image datasets of Airsim drone simulations in Unreal Engine using C++ and Python; made to help train a CV model
- Coordinated with another undergraduate student to deliver object-detection using MobilenetV2 on the Jetson Nano
- Provided a networking stack to detect latency for a center-less cloud of Jetson Nanos using ZeroMQ and Google Protobuf
- Worked closely with a PhD student under researching In/Out of Distribution inputs to neural networks

PROJECTS

Cycle-level CPU Simulation **August 2021 – Decenmber 2021**

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SKILLS

- **Programming Languages:** System Verilog, Verilog, C, Python, C++, Perl, ARM Thumb/Risc-V Assembly
- **Libraries:** ARM CMSIS RTOS, FreeRTOS, Protobuf, Nanopb, Threading (Python), PySerial, PyFTDI, LittleFS (Python), PyTest
- **Computer Science:** Object Oriented Programming, Data Structures, Machine Learning, Operating Systems, Agile
- **Software Applications:** VCS, UVM, Whisper, Vivado, Git, Lauterbach, Linux, MATLAB, KiCad, Autodesk Eagle, Latex