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RELAVANT EXPERIENCE

Engineer (Modem), Qualcomm Technologies Inc.   **Boxborough MA, Aug 2020 —Present**
- Implemented 5G NR W1-precoder matrix selection modules in assembly language on vector modem-DSP tile.
- Implemented Maximal Ratio Combiner, QPSK, 16-QAM & 64 QAM Look-Up-Table based Slicer, AWGN channel whitening, resource element extractor modules in assembly language on Qualcomm's vector modem-DSP using hardware loops, software define pipelines, and modem specific instructions.

Senior Engineer, Spirent Communications   **Eatontown NJ, Jan 2020 – July 2020**
- Implemented a multi-threaded dynamic rate convertor library (polyphase decimator & interpolators DSP blocks, thread manger, data sourcer, and sink) in C++ to resample large fading files (> 2 GB)
- Implemented closest interpolation rate searching algorithm within specified error specification in C++.

Embedded Engineer, Spirent Communications   **Eatontown NJ, May 2018 – December 2019**
Vertex Digital Signal Processing Design:
- Designed Vertex's dynamic rate-conversion sub-system to support arbitrary scaling of fading Doppler signals to an accuracy of 0.1 Hz using multi-rate filter banks in MATLAB.
- Improved Lognormal fading DSP firmware performance on TMS320C6678 by x3.84 (389,000 to 101,000 cycles) using processor intrinsics, reducing loop carried bound and software pipelining (out of order assembly execution).
- Designed, implemented and delivered 3GPP High Speed Train Channel model DSP firmware on TMS320C6678.
Live2Lab Ownership:
- Lead a team of 2 Developers & a QA Engineer to deliver 2 major releases of Spirent's Live2Lab – for 5G NR.
- Implemented new processing engine's routines for 5G NR Over-The-Air MIMO testing of gNodeB in C#.
- Translated product manager's requirements to design specifications, determined project timelines, developed test cases, documented new feature details in user manual and trained product specialists/support team.

Wireless Engineering Intern, Skylark Wireless LLC   **Houston TX, November 2017 – May 2018**
- Improved Iris SDR's SFDR by 28.571% (9.52 dBc) by implementing self-calibration firmware to mitigate LO Feed Through, DC Offset and IQ impairments of LMS7002M --2X2 MIMO RFIC, using Python SWIG, SoapySDR and C++.
- Implemented a DOCSIS 3.1 to UHF Band Upstream Up conversion using LMS7002EVB and demoed to a client.
- Assisted in Iris software defined radio (SDR) Rx Sensitivity tests by setting up synchronized Iris SDR test-setup.
- Performed Quality Assurance-power sequence tests on 112 Iris-SDRs to characterize inrush current on Iris SDRs.
- Made a Rasberrypi image to remotely power cycle FAROS Base Stations (inaccessible after installation).
- Recommended Microsoft Air Band Grant Initiative to raise a capital of $75,000.00 for the start-up.

SKILLS

- ✓ *Programming languages & libraries:*   MATLAB, C, C++ (11), C#, Python, Bash, Assembly, numpy, scipy, pandas.
- ✓ *Architectures:*   Texas Instruments' c66xx & c320x DSP, Qualcomm's Hexagon modem-DSP; Open Virtual Platform (*beginner*), NVDLA (*beginner*);
- ✓ *RTOS & Tools:*   Texas Instruments' RTOS & C66xx Compiler; Hexagon LLVM (*beginner*)
- ✓ *Typesetting & Productivity:*   LaTeX, VIM, Git, Perfoce, GDB, SWIG, make, CMake, Jenkins, Ant Build;

EDUCATION

University of Maryland, College Park, MD.
Master of Science in Telecommunications   GPA: 3.83   May 2017
Awards: Academic Excellence Scholarship, Feb.'17
Vellore Institute of Technology, Vellore, India.
Bachelor of Technology in Electronics and Communication Engineering   GPA: 8.35/10   May 2014