TOM T. HUA

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Status: **U.S. Citizen**; available to travel worldwide for business purpose

Embedded Systems Engineering Professional

Write bare-metal component firmware in C. Bring up hardware prototypes and systems.

Contributions: Developing system control software for R&D and Production

Full development, test, release, and sustain software from components to graphical user interface level.

- *Industries*:
Skin Treatment and aesthetic Lasers systems, blood cell cytometer, mass spectrometer, finger-print biometrics readers, microscope Lasers, communication fiber optics, audio processing products.

Sr. Software Engineer Shockewave Medical Inc., Santa Clara, CA June 15 2020 to present
Industry: Intravascular Lithotripsy system
- Develop micro-controller firmware of the intravascular lithotripsy system.
- Participate and review product software specification and requirement compliant with FDA guidelines.
- Use UML framework in software development life cycle to design the system software.
- Select and evaluate hardware component for new system prototype.
- Write firmware in C for 32-bit processor and test procedure in Ruby script.
- Design and implement run-time data logging software.
- Collaborate with external software vendor on the same code base for full integration on Git repository.

Software Engineer Sciton Inc., Palo Alto, CA Oct. 2013 – present, 2020
Industry: Clinical Lasers systems for skin treatment and hair removal.
- Develop varieties of micro-controllers' firmware for new and existing products.
- Write device driver of RS232/I2C/SPI/1-wire intercommunication protocol in multi-modules system.
- Write code for stepper motor; thermal, optical sensors; ADC/DAC, PWM. Use ALSA (audio) library.
- Use Qt programming language to design and implement Laser system graphical user interface.
- Define software requirement and specification to integrate third party hardware in the system.
- Use debugger, instrument, and creative techniques to analyze system timing and performance.
- Develop SoC firmware and UI prototype for infrared thermal camera in embedded Linux system.
- Define and modify digital circuits of new and existing hardware to support new application features.
- Design and implement fault tolerant and cooperative scheduler routines. Boot-loader integration.
- Customize embedded Linux OS image, create configurations, distribution, and installation scripts.
- Add OpenSSL library to embedded Linux for password entry and service subscription authentication.
- Use standard source control to manage subversion, build distribution. Use defect tracking system.
- Write document, configuration, and test code, procedure to support HW and production department.
- Write test plans, test cases. Perform unit testing. Collect and report test records.

Software Engineer (Contractor) DigitalPersona, Redwood City, CA Jan. 2012 – Aug. 2012
Industry: Finger print biometrics screening device
- Wrote firmware to interface with high definition camera used in finger print readers.
- Wrote production software automation for firmware loading and testing.

System Test Engineer (Contractor) BD Biosciences, San Jose, CA July 2010 – Oct. 2011
Industry: cytometer (blood cell characterization and sorting) for immunology
- Performed firmware and application software integration to cytometer instrument.
- Conducted bench-marking and characterization of performance on firmware and hardware builds.
- Managed build configuration and verified compatibility with different version of hardware.
- Tested firmware-controlled fluidics, stepper motors, and optical laser delivery modules.

Software Developer Spectra Physics, Mountain View, CA May 2006 – Jun. 2008
Industry: Solid-state Laser system for scientific research microscope, and precision cutting application
- Created firmware and graphical user interface to control laser output parameter and temperature.
- Conducted micro-controller hardware module bring-up. Wrote code for sensors and stepper motors.
- Performed all software tests. Maintained and revised software for new features and defect correction.

Hardware Engineering Technician Thermo Electron. San Jose, CA Aug. 2003 – May 2005
Industry: Mass spectrometer for cell analysis
- Performed hardware component searching and procurement for ten engineers.
- Created a software and graphical user interface automation to acquire RF circuit characteristics.

Software developer and test engineering (full time) Bay Area, CA since 1995
- Wrote software from device level to graphical user interface in Windows PC and Macintosh platform.

Continuing education, training, independent projects:

MS and BS in Computer Systems and Engineering,
- Northwestern Polytechnic University. Fremont, CA
- Certificate of RTOS Embedded System Program, Santa Clara, CA
- AA in Business-Supervision-Management, Ohlone Community College. Fremont, CA
- AS degree in Electronics (Iowa).
- Software project management.
- C#, Python, PERL, XHTML; Yocto, Buildroot, FreeRTOS, Mbed OS.
- Cisco router configuration. Completion of printed-circuit-board layout design course.
- Linux kernel architecture, Device Driver, and System programming (UCSC Extension, 18, 19)