

Xueyi Li

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Summary

- I am the **Doer** and a productive individual **Contributor** with hands-on analytical and troubleshooting skills. I embrace simplicity in system architecture/design, documentation and project management.
- At BD Biosciences, our firmware engineering team thrives on simplicity and efficiency, guided by my expertise in Baremetal, Linux, object-oriented programming, shell scripting and robust software development. My role as Staff Engineer II capitalizes on these competencies, ensuring our medical devices meet the highest standards of reliability and performance.
- Cultivated with continuously making improvement mindset and attention to customers' needs, I never stopped integrating cutting-edge techniques to enhance firmware functionality. Collaborating closely with cross-functional teams, and we've successfully streamlined system architectures and improved project documentation, embodying a dedication to innovation and precision that defines our work at BD.

Top Skills

- System Architecture & Implementation, Linux, Multithreading, BareMetal, RTOS
- C/C++/Boost, Bash, Python, Markdown, UML, SQL
- VIM, CMake, Make, Boost Build(b2), Git, Azure, Pandoc
- GPIO, I2C, SPI, RS-485/232, CAN, Oscilloscope/Multimeter, GDB
- Open Sources Libs: HTTP, WebSocket, OpenCV, Batnet, Json, OpenCV, Zbar, Redis, Hireis, Logging

Work Experience

04/2020 to present

Staff Engineer II, Firmware Engineering @BD Bioscience, California, USA

- Optimized firmware build process from **~75 minutes** to **<10 minutes** with Makefiles/boost build(b2)
- Optimized RS485 communication performance/reliability by implementing adaptive window algorithm, greatly increased ACUDU sorting performance from previous **67s** to **~35s**
- Redesigned and decoupled controller and simulator code, more readable and portable, preventing duplicating effort & time of entire firmware team, facilitated QA team with their daily tests
- Design and implemented Software Simulator sending https commands/queries and receiving WebSocket messages; Also, wrote a lot of the test cases using bash and curl, simplified test process
- Automated release and deployment process for QA team by writing a bunch of bash scripts

08/2018 to 01/2020

Senior Software Engineer @Turntide Technologies, California, USA

- Designed & implemented BACnet server layer on top of BACnet Stack(0.9.1)
- Implemented BACnet/IP(BIP) and Master Slave/Token Passing(MSTP on RS-485) application service.
- Refactored data management layer, restructured more than ten thousands of lines of redundant code.
- Implemented sqlite3 database read/write abstract layer by creating portable utility wrapper functions.
- Designed & implemented data sharing service that allows information exchange across BACnet devices.
- Implemented dynamic memory consumption and memory leaking checking tools(with Valgrind) in bash which resolved major memory leaking issues.

04/2017 to 08/2018

Senior Linux Application Engineer @Mercedes-Benz R&D North America, California, USA

- Designed and implemented multi-threaded video streaming service for 2D camera and 3D cameras.
- Accomplished multi-streaming solutions in distributed system with socket and open source libraries.
- Designed and implemented positioning light control system with socket servers and client using Arduino.
- Implemented messages/events communication mechanism in multi-threaded system using Redis.
- Integrated computer vision algorithms for object identification and tracking.
- Work jointly with all the cross-functional team members to achieve the best performance of the product.

02/2016 to 01/2017

Senior Embedded Software Engineer @Elixir Photonics Incorporated, California, USA

- Customized Jam STAPL Player to program FPGA in a JTAG chain with text-based Jam file.
- Implemented FTDI chip driver and Inter-Integrated Circuit (I2C) shared library on Raspberry Pi.
- Developed python wrapper to call the I2C shared library, including read/write/convert APIs.
- Implemented services to monitor memory consumption and to manage log rotations.
- Design and Implemented Low Voltage signal detection and protection application on PIC MCU.
- Board Bring-up, manage software integration and software version control.

06/2014 to 07/2015

Embedded Software Engineer @Mentor Graphics, Shanghai, China

- Developed Volcano Target Package(VTP) sample project for various customers.
- Conducted on-site presentation, training, system integration and troubleshooting.
- Demonstrated technical assistance on Automotive CAN subsystem implementation and integration.
- Strengthened sustained relationships with global customers. Improved 20% VTP market share in China.

05/2010 to 06/2014

Embedded Software Engineer @Yanfeng Visteon Electronics Technology, Shanghai, China

- Implemented critical subsystems such as Flash Boot-loader, Inter-Processor Communication Layer(IPCL, DMA), Back-light Dimming Control and Multi-Media, which are portable, readable and consistent.
- Accelerated sibling projects' development by **3-5 months** via porting those subsystems I developed.
- Accomplished Memory Check components' implementation, familiar with link file and map file.
- Managed and accomplished more than 8 mechanism replacement projects independently in 2011.
- Maintained good relationships with customers. Won the "Best Coordinator Award" in 2011.

Education

- *Master, Biomedical Engineering, Shanghai University, Shanghai, China, 05/2010*
- *Bachelor, EE, Huanghe Science & Technology College, Zhengzhou, China, 06/2007*

Certification

- [Machine Learning Engineer Nanodegree](#), Udacity, California, USA, 06/2019