JOSEPH M. KUSS

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FIRMWARE/SOFTWARE DEVELOPMENT ENGINEER

An MSEE with extensive capability in development of firmware, software, and electronic systems. A resourceful and creative problem solver dedicated to producing quality products.

TECHNICAL SKILLS

C, C++, C#	RTOS, QNX	Sensor Interfacing
Electro-mechanical FW	TCP/IP, I2C and SPI	PID Control
ARM - Cortex M0, M3,M4	WireShark protocol analysis	PLC Programming
Microchip - PIC 16,18	Visual Studio/Eclipse IDE	Test Automation, XML

PROFESSIONAL EXPERIENCE

CareFusion/BD, San Diego CA   **2011 - 2017**
Principal Firmware Test Engineer

- Created firmware verification scripts for Pyxis drug dispensing machines in "TCP- Inject" scripting language. Packet verification for TCP/IP, RS-485, I2C (multilayered) protocols. Designed verification code for drawer and lid/latch control firmware.
Provided inputs to developer resulting in significant improvements in the scripting language. Created a user's manual for this language.

- Ported CAN to USB to WireShark packet acquisition program from C to C#.
Added .Net pipe message passing and date time stamping functionality.

- Wrote Wireshark packet parsers in Lua language. Also developed C# windows program for parsing and display of data steam packets with XML as the template to translate an arbitrary packet specification into parsed data.

- Validated C#/.Net WPF HTA- "Hospital Test Application" included with CareFusion products, using Microsoft Team Foundation test tools.

Zodiac (Jandy) Pool Systems, Vista CA   **2011**
Development Engineer, Firmware.

- RS-485, wireless, internet firmware, for home pool swimming pool control systems.
- Failure analysis on Chlorine generators, and LCD control panels.

RasircInc, San Diego CA   **2009-2011**
Development Engineer – Firmware,Electronics.
- Created programs in C# for PC Windows, and Cortex M3 firmware to prove feasibility of MODBUS RTU protocol for Rasirc steam purifiers.
- Developed a complete steam purifier embedded controller circuit board design, within 4-months. As part of this, LTSpice used to verify the analog design.
- Provided documentation and program enhancements for "Automation Direct" ladder logic PLCs serving as first generation steam purifiers.

Aeronex/Mykrolis/Entegris, San Diego CA   **2001-2009**
Development Engineer – Firmware, Electronics
Primary member of small team helping Aeronex/Mykrolis/Entegris become the market leader for gas purification technology in the semiconductor industry.
- Designed two generations of gas purification controller firmware and electronics utilizing PIC 18F series microcontroller technology. Included in Entegris patent application, for synchronizing their 5-purifier system.
- Invented enhancements to a configuration file language which enabled shorter configuration files for complex configurations of the product.

ADDITIONAL EXPERIENCE

_Nexus Engineering Solutions, LLC__, San Diego CA (Consultant)_
Provided firmware modules for a proof of concept demo to a small team of engineers developing MSP-430 firmware for a Bluetooth Low Energy Bio-Sensor.
_Sun Microsystems__, San Diego CA_
Performed hardware/firmware integration: root cause fault analysis for "Sunfire15k" server in development. Provided technical leadership in "hardware versus software" bug resolutions.
_HM Electronics__, Poway CA_
Developed audio voice recorder FW. Modified intercom C++ FW to meet customer needs.
Created object oriented C firmware and UML documentation for a new radio belt pack.
_GI/Motorola__, San Diego CA_
Test engineer for TV set top box production testing.
Beckman-Coulter, Brea CA
Isolated and fixed protocol error in multi processor blood diagnostics system. Wrote software modules to satisfy FDA regulations. Worked in large software team environment.
IVAC Corporation, San Diego CA
Teamed with inventors of infusion pump firmware to improve product reliability.

EDUCATION
MSEE, SDSU - San Diego, CA- Computer Engineering
BSEE, UCSD – La Jolla CA -Semiconductor Technology
Ham Radio Op, Advanced Class: WB6JSJ

Learner - Ideation - Intellection - Empathy - Achiever