

## JOSEPH M. KUSS

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### FIRMWARE/SOFTWARE DEVELOPMENT ENGINEER

An MSEE accomplished in development of firmware, software, and electronic systems with resourceful and creative problem solving skills, focused on producing quality products.

### TECHNICAL SKILLS

C, C++, C#

Electro-mechanical FW

ARM - Cortex M0, M3, M4

Microchip - PIC 16,18

RTOS, LINUX

TCP/IP, I2C and SPI

WireShark protocol analysis

Visual Studio/Eclipse IDE

Sensor Interfacing

PID Control

PLC Programming

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. Designed 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.
- Performed "Unity" Unit testing experiments, on Linux/Virtual Box/Eclipse.

**Rasirc Inc**, 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.

**Zodiac (Jandy) Pool Systems, Vista CA**

RS-485, wireless, internet firmware, for home pool swimming pool control systems.

Failure analysis on Chlorine generators, and LCD control panels.

**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, In Solaris (Unix/Linux) environment.

**HM Electronics, Poway CA**

Firmware development engineer: Audio voice recorder firmware, Enhanced intercom C++ FW to meet customer needs. Radio Belt pack C firmware using object oriented design and UML documentation. Timer module firmware designs.

**GI/Motorola, San Diego CA**

Test engineer for TV set top box production testing.

**Beckman-Coulter, Brea CA**

Isolated and fixed protocol errors. Wrote software modules to satisfy FDA regulations. Worked in large software team environment, utilizing QNX, (Unix/Linux).

**IVAC Corporation, San Diego CA**

Teamed with inventors of infusion pump firmware to improve product reliability.

**EDUCATION**

**MSEE, San Diego State University, Computer Engineering**  
**BSEE, University of California at San Diego, Semiconductor Technology**  
**Ham Radio Op, Advanced Class: WB6JSJ**  
*Learner - Ideation - Intellection - Empathy - Achiever*