

Randall Maas

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Professional Summary

Mr. Maas is a Software Engineer and Team Lead with significant experience in the Medical Device, Storage and Mechatronics industries, involved with the full FDA 62304 and 60730 software development lifecycles.

Embedded Controllers	Requirements Specification & Tracing
Medical Firmware	Design and Documentation
Device Drivers	Design Reviews & FMEAs
Remote Monitoring	IEC 62304, 14971, 60730
	IEC 60730, 60335, 62841

Experience

March 2019-present

Boston Scientific – Consultant

- Firmware Team lead with a multi-site, international development team
- Developed brushless DC motor firmware

May 2015-March 2019

Toro – Consultant

- Developed coin-cell powered Bluetooth LE sensor
- Developed brushless DC motor firmware
- Developed next generation hour meters with safety interlock systems
- Standards driven requirements development

Each included extensive documentation, requirements discovery and support for UL1998 / 60730

Aug 2014 – April 2015

Danfoss – Consultant

Co-developed four next-generation CAN-based power controllers.

June 2012-June 2013

Devicix – Consultant

- Developed a handheld application for water quality monitoring. This included implementing USB mass storage and bulk profiles
- Developed a ventilator blower prototype.

September 2010-May 2012; October 2013-May 2014

Medtronic – Consultant

- Demonstrated the feasibility of inductive recharge and an innovative “distance” telemetry for future products. This produced a product ready design.
- Implemented USB mass storage and VCOM profiles
- Wrote detailed design documentation; coauthored the hardware theory of operation; and revised the communication protocol specification.

March 2006-November 2009

Enteromedics – Sr. Principal Software Development Engineer

As firmware team lead, delivered four generations of implantable medical devices (class III), using FDA-complaint software development and design controls.

This produced Enteromedics first market approved product (PMA issued 2013)

October 2002 - November 2004; Fall 2005-January 2006

XIOTech Corporation – Consultant

- Designed software components for monitoring and automatically configuring several product models
- Designed and wrote high-speed socket-based code for Linux
- Developed software for updating firmware in storage arrays & drives
- Modified SQL database to respond to field equipment issue
- Developed 3D-graphics tools to visualize performance & bottlenecks in customer-systems using performance data stored in an SQL database

October 1999 -
April 2003;
April 2004 - April
2005

Medtronic, Inc – Consultant

- Developed a microcontroller-based monitor for an implantable pressure sensor; this included a special feature to power the sensor via RF
- Developed hand-held application to display implantable sensor data
- Developed software used to gather and transport data from an Implantable Hemodynamic Monitor to a central Server
- Developed a microcontroller-based data-logger, recording onto secure-digital memory cards.

February 1997 -
October 1999

XIOTech Corporation

- Developed the Netware & Linux device drivers for custom adapters.
- Developed a socket-based link between the Magnitude Storage Array and Windows NT using FTP Software's TCP/IP stack.
- Co-wrote the storage array's internal management console
- Developed a library embedding circuit-level (JTAG) boundary-scan testing and FPGA updates into the Management Console

July 1995 - 1997

Reality Interactive

Sept 1993 - 1995

Software development for various departments, Hamline University

Jul 1990- Aug 1993

University of Washington Applied Physics Lab

Education

BA Physics – Hamline University

- Dean's List
- Alumni Award

University of Washington (Major in Physics)

Engineering Tools

Hardware

Intel 8051, Microchip PIC, AVR, 6802, Cortex M (STM32, Freescale Kinetis, NXP LPC, Silicon Labs, TI Tiva), Actel A2F200, Cypress PSOC, Silicon Labs EFR2, Cambridge Software Radio

Operating Systems

UNIX (BSD, Mac OS X), Linux, Windows, Micrium μ C/OS-II (μ C/USB, μ C/FS), Chibios

GUIs

Micrium μ C/GUI (aka Segger), Swell Software C/PEG

Languages

Assembly, C/C++, C#, Java, JavaScript, Matlab, Objective-C, openCL, GL Shader Language, Prolog

Tools

IAR, Keil, MDK, MCC, TI Code Composer, Eclipse+GNU C, Gimpel Lint, Microsoft Visual Studio, Requisite Pro, PVCS, SVN, Git

Protocols

Bluetooth LE, CAN, PPP, FTP, HTTP, custom TCP/IP protocols, JTAG & SVF, I2C, SMBUS, SPI, USB

Patents

System, apparatus and method for interacting with a targeted tissue of a patient
United States 8,489,196

Safety features for use in medical devices
United States 9,393,420

Writing samples

Please see <http://randym.name/> for some writing samples, including articles for Microsoft's "Coding 4 Fun" site. (C# and C++ projects)

Volunteer work

First Robotics mentor
First Lego League Coach (past)