Randall Maas

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# Professional Summary

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

# Experience

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| **May 2015-present** | **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** |
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| Education | BA Physics – Hamline University   * Dean’s List * Alumni Award   University of Washington (Major in Physics) |

# Engineering Tools

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| ***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 μC/OS-II (μC/USB, μC/FS), Chibios |
| ***GUIs*** | Micrium μC/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 |

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| 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) |