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QUALIFICATIONS SUMMARY

Key Strengths: FDA class 2 device development in a high-performance development environment Full life cycle development software projects; client liaison; and architectural and design efforts.

PRODUCT / PROJECT SUMMARY

- **Lively Mobile:** A pendant that monitors falls and alerts for senior citizens. (GreatCall)
- **Spectrum:** UI (C/C++) for Intravenous pump. FDA Class 2, Safety Classification C (Baxter)
- **PAK:** UI (Java/Android) and Firmware (Verilog) for portable Dialysis Machine for home use. Medical device, FDA Class 2, Safety Classification C (Fresenius Medical Care)
- **Symbiq:** UI (C/C++) for 2 channel Intravenous pump. Medical device, FDA Class 2, Safety Classification C (Hospira)
- **CE:** Embedded Linux based Communication Engine (in C) for Symbiq and Plum pumps; WIFI wireless and wired; communication to and from central Mednet Server (Hospira)
- **Plum:** retrofit CE into legacy single channel IV pump. Medical device, FDA Class 2 (Hospira)
- **CDMA phone:** various features (in C) including Push-to-Talk (Nokia)
- **Distributed document handler:** FTP based document handler (C/C++) for third-party printers (ClickTactics)
- **Passport:** Embedded credit card handler (in C) for point-of-sale device for gas stations; wrote 20ma loop serial communication protocol (Marconi)
- **Harbour:** Mainframe-to-PC (cross-platform mostly C) file distribution and installation system; demo of an upgrade from DOS 6.3 system to Win95 over 9600 baud modem and back to DOS (New Era)
- **ISPW:** Installation scripts and Xref feature (PL/I, Cobol, C) for a Mutil-user Integrated Development Environment for IBM Mainframes (Benchmark)
- **Oil Well Cost Accounting System:** Cobol based cost accounting system (Canterra)
- **Communication System:** Canadian Naval Defense Project for new class of Frigates (SED)

TECHNICAL SKILLS SUMMARY

Skill	Last Used	Total	Strength
Team Lead & SW Team Management	recent	15+ years	High
SW Architecture / Design	recent	15+ years	High
UI Design (medical devices)	recent	15+ years	High
FDA SW documentation	recent	15+ years	High
OOP	recent	15+ years	High
Automated Test	recent	15+ years	High
Ruby	recent	7 years	Med
OSX, Ubuntu OS, bash scripting	recent	7 years	Med
Jenkins / Hudson	recent	7 years	Med
Mercurial / Subversion / Git	recent	7 years	Med
C/C++ Embedded & High Reliability Applications	recent	20+ years	Med
Perl	< 2 years	15+ years	Med
Python	recent	< 1 year	Low

EMPLOYMENT HISTORY

GreatCall	Senior Software Engineer (Embedded)	Feb 2017 – present
Environment	Embedded C/C++, FreeRTOS, Lua, Python, GoogleTest, Git, Agile/Scrum, Jira	
<i>GreatCall is a market leader in IOT devices for senior citizens. "Lively Mobile" (aka Responder) is a pendant that monitors senior citizen activities and alerts if they need help or a fall occurs.</i>		
Software Development Activities:		
<ul style="list-style-type: none"> • Convert C/C++ code base to use an Operating System Abstraction Layer (OSAL) and a Hardware Abstraction Layer (HAL) to allow the creation of a Soft-target • Participate in discussions for increasing the quality of the software through automated test systems using Python, a Soft-target, and other on-device testing • Wrote a comprehensive on-device smoke test / stress test to exercise most system functions • Increase Unit Test coverage using various tools; primarily GoogleTest for C/C++ • Various defect fixes and feature enhancements 		
Baxter	Contract	Jun 2016 – Oct 2016
Environment	Embedded C/C++, Ruby, Subversion, Agile/Scrum, QT, Jira, Crucible	
<i>Baxter is a world-class market leader in various medical devices. Spectrum is an Intravenous infusion pump, an FDA class 2 device.</i>		
Contract	Contract for work on Spectrum IV Infusion pump. Also worked on the next generation pump platform.	
Fresenius Medical Care	Contract	Apr 2015 – May 2016
Environment	See below	
Contract	Contract for transition period. See below.	
Fresenius Medical Care	Senior Software Engineering Manager	Apr 2010 – Apr 2015
Environment	Embedded Android 2.3.3., Java/Linux, mercurial, Ruby, Agile, Xilinx FPGAs using Verilog	
<i>Fresenius is the world-class market leader in Dialysis pumps, FDA class 2 devices. The PAK (Portable Artificial Kidney) is a portable dialysis machine for home use.</i>		
Software Development Activities:		
<ul style="list-style-type: none"> • Designed a fully automated Traceability matrix parsing system from Requirements to Design to Code, Unit Tests and Automated and Manual Test Cases (in ruby). • Designed and implemented the Unit Test framework for C#/Mono and for embedded Java. • Wrote the initial structure for the automated Verification Test Framework (in Ruby). • Designed a fully automated set of scripts to create/recreate Development laptops as well as Servers. I implemented the scripts in ruby, perl and bash. This was from scorched earth and included: Defect Tracking System (Roundup), Source Control (Mercurial), Continuous Build System (Jenkins), Online Code Review System (Review Board), site wiki (Media Wiki) and all user documentation. • Designed and implemented a Server farm run via Jenkins to do distributed builds and automated tests, cutting the Verification Dry Runs from 6 to 3 hours. 		
SW Architect Activities:		
<ul style="list-style-type: none"> • Participated in patent discussions. • Architecture and design for UI software on the device. Reviewed CND and PRD, customer liaison with clinicians, maintained SDS and SRS documents. • Architecture and design for Verification Test Framework (in Ruby) 		

Documentation, SOPs, Processes, Procedures

- UI SRS and SDS documents
- Initial SRS for the Firmware
- Software Architecture document for UI and Firmware
- Communication protocol between the UI controller and the FPGA-based hardware controller
- Software Development Plan (SDP)
- Wrote or oversaw the remainder of the UI and Firmware documents
- Review and approve documents in DHF (via Agile PLM)
- Converted the software process to be IEC-62304 compliant in 2015/2016.
- Developed and wrote procedures for creating and disposition of SCRs, Code Reviews, Coding Standards, Unit Test Procedures, Source Control usage, Candidate Release process, and Release Process. Tool Validation documents as required.

Lead and Management

- I hired the UI software and verification teams, and managed them on a day to day basis.
- Led the Firmware team from 2014 and forward. A total of 18 people were direct reports to me.
- Managed vendor contracts for the Android/Linux distribution and Firmware work as necessary.
- Liaison with Quality and Regulatory managers in preparation for 510K submission.
- Led UI Engineering Test and Verification Team.

OTHER EMPLOYMENT

2005 - 2010	Hospira Inc.	Architect, Team Lead	San Diego, CA
2002 - 2004	Nokia Mobile Phones	Team Lead	San Diego, CA
2002 Contract	Alaris Medical Inc.	Test Engineer	San Diego, CA
2001 - 2002	Click Tactics	Senior Architect	Atlanta, GA
1997 - 2001	Marconi Commerce Systems	Lead Software Engineer	Greensboro, NC
1993 - 1997	New Era Systems Services Ltd	Independent Contractor	Calgary, Canada
1988 - 1993	BenchMark Technologies	Senior Systems Analyst	Calgary, Canada
1987 - 1988	Canterra Energy Ltd	Programmer	Calgary, Canada
1986 - 1987	SED Systems Ltd.	Team Lead	Saskatoon, Canada
1985 Summer	Canterra Energy Ltd.	Programmer	Calgary, Canada
1984 - 1986	University of Calgary	Lab Instructor	Calgary, Canada

EDUCATION

Certification

1999, Sun Java Programmer Greensboro, NC

Masters Degree

1988 – 1993 Masters in Business Administration University of Calgary, Calgary, Canada
 Specialized in Entrepreneurship Studies; evaluated Business Plans submitted by local entrepreneurs.

Undergraduate Degree

1983 – 1986 BSc. Computer Science (3.6 GPA) University of Calgary, Calgary, Canada
 Louise McKinney Scholarship in 1983 (3.8 GPA)

PATENTS/APPLICATIONS

- Granted: 9393362, 9381296, 8700421, 8543416, 8317752 Infusion Pump with Configurable Screen Settings (other related: 20090153058, 20090153463, 20090153595, 20090157432)
- Granted: 9594875 Medical Device Update System (other related: 20170024534, 20130104120)
- 20170173248 - System and Method for Controlling Venous Air Recovery in a Portable Dialysis System
- 20160346451 - Alert on a Dialysis Machine
- 20160261974 - Associating Dialysis Accessories Using Near Field Communication
- 20100100037 - Touch Screen System and Navigation and Programming Methods for an Infusion Pump
- Additional patent applications pending submittal to USPTO, not yet public.
- Additional patent applications submitted to USPTO, not yet public.

PERSONAL PROJECTS

- low-rate pump using an off-the-shelf peristaltic head. Currently runs from 0.45 mL/hr to 2200 mL/hr. Uses an Arduino and a unique algorithm for the low-level pump control.
- MVT (Manual Verification Tester), a MEAN-stack (Angular, MongoDB, Express and Node) web app that allows a Verification team to create and run Verification Test Cases. Adding an automated test capability.
- ruby utility that takes two or more street addresses and finds a central location that minimizes the drive times for all the participants. Will be converting this to MEAN
- See public wiki for https://arrizza.org/wiki/index.php/Main_Page for more personal projects
- See public Arduino and other projects: <http://arrizza.org/public-hg>