MR. KIM R. VOLZ

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CAREER HIGHLIGHTS

➢ Connected things and people through Wi-Fi, Bluetooth, and Cellular to help provide information to enhance life through biometrics, auto-ordered products, and cardio monitoring.

➢ Bringing people back from the dead by guiding a team to create the most advanced Automated External Defibrillator (AED) by Architecting, Designing, and coding the software. *Product in use.*

➢ Saving lives and limbs by resolving blood clots in half the time of other treatments through programming and managing the embedded product design using Agile and Six Sigma Methodologies. *Product still in use.*

➢ Formed, staffed, and managed a manufacturing department including coordinating external vendors, in-house resources and departments to produce FDA approved products using Kanban, Just-In-Time, and Six Sigma Methodologies.

➢ Manager/Lead of 13 full product life cycles that involved hardware and software starting at contemplation through deployment.

➢ Over 20 years of software and product design experience including test.

➢ Over 15 years of C/C++ experience in embedded and PC software development including use of different RTOSs.

➢ Over 10 years of project management and team development.

➢ Six Sigma Green Belt Certified, inactive Security Clearance, BS in Computers and Software Systems.

COMPETENCIES

SOFTWARE LANGUAGES/OSS

C/C++, MFC, Ruby, Perl, LabView, Lab Windows/CVI, VBA, Wind River pSOS, Wind River VxWorks, Express Logic ThreadX, Embedded Linux, Java, numerous Assembly languages, Linux, Solaris, Unix, Windows/NT

COMMUNICATIONS PROTOCOLS

Bluetooth, Bluetooth low energy, Wi-Fi, I2C, I2S, SPI/Microwire, RS-232, RS-422/485, ARINC 429/629, Maxim 1-wire, IEEE-488, ISDN

REGULATORY

ISO 62304, ISO 14971, ISO 13485, IEC 60601-1, DO-178B

SOFTWARE TOOLS/APPLICATIONS

nRFgo Studio, Visual C++, Visual Studio, Git, SVN, Word, Excel, Visio, Power Point, Project, Construx Estimation, Slick Edit, Clear Case, Perforce, Matlab, Greenhills Multi, Orcad, Pads, Byte Craft, PC-Lint, GNU, Turbo Cadd, Generic Cadd, Beyond Compare, Borland Builder

HARDWARE PROCESSORS/GLUE

Rigado BMD-200 and 300 (**Nordic Semiconductor** nRF51822 / nRF52832) **Freescale:** i.MX6 (ARM 9) **Kinetis:** KL15 (ARM M0) **TI:** MSP430, TMS320C6701, TMS320C6713 DSP; **Motorola:** 68K, 68331/2, 68302, PowerPC; **Zilog:** Z80; **DEC:** PDP-11; **Rockwell:** C19, C29 **Intel:** 8048, 8051, 808x, 80Cx86, 80C196, 80386EX; **Microchip:** PIC12xxx, PIC16xxx PIC 18xxx, 14000; **Glue:** ADC/DAC, VCOs, Digital I/O, Power Measurement Chips, Motor Drive Chips, Serial Driver Chips (232→USB→232), PLCC, ASICs, Designs included multi-processor , graphic controllers, and boot up control

QUALIFICATION EQUIPMENT

Oscilloscopes, Spectrum Analyzers, Tekelec, DMM, Power Supplies Function/Waveform Generators, Power/Watt Meters, RF Amplifiers, Hydro Phones, Logic Analyzers

PUBLICATIONS AND PATENTS

"Effect Of Modulated Ultrasound Parameters On Ultrasound-Induced Thrombolysis", Physics In Medicine And Biology

Patent: 6979293 – Blood Flow Reestablishment Determination.

Patent Pending: 60/969,524 – Fluid determination via Heat Conduction

Patent Pending: 60/884,010 – Non-linear modulation of Ultrasound for Drug Disbursement

Patent Pending: 12/334,295 – Ultrasonic Pulse Shape of Ultrasound for Drug Disbursement

PROFESSIONAL EXPERIENCE

Intelligent Product Solutions
Aug 2016 to March 2017

Sr. Systems Engineer

Systems Engineer to guide product development within the software, hardware, and mechanical disciplines creating new products and enhancing old products.

- Designed products for the Internet of Things (IoT). Products included a drink dispenser (with chiller), mini-camera body, and a statistical bio-metric standing mat. Updated a video projection system utilizing Linux and Java Scripting.
- Architected proposed systems for noise cancelling with sound enhancement ear phones and a bicycle bio-metric monitor system of the rider.
- Constructed proposals for products which included requirements generation, planning boards, project plans, and basic architectures with division of requirements to engineering disciplines.
- Trained team members to use Six Sigma practices for determining requirements and decision matrices.
- Programmed Bluetooth low energy and Wi-Fi connected systems using C and C++ on the Rigado BMD-200 and 300 (Nordic Semiconductor nRF51822 / nRF52832)

Physio Control Incorporated
April 2012 to Aug 2016

Principal Software Engineer

Team Lead that increased team efficiency for a new monitor and defibrillator for paramedics and emergency room use.

- Created a new functional DFMECA process which allowed the process to start earlier and provide design changes earlier, thus decreasing overall project costs.
- Modified the Software requirement process to create and level requirements for more consistency.
- Feature owner (Scrum Master) controlling the cadence and operational software implementation to include making new templates using 6-Sigma techniques. The new system was considered creative and much more efficient by the Software Director and Software Project Manager.
- Improved the requirement traceability process to allow trace from the Product to Software to Code and architecture through to testing scripts.
- Led Software Test team (On and Off site team 11 people US/India/Ukraine) as a Scrum Master.
- Designed a test rack system that allowed testing of all monitor and defibrillation features of the new product.
- Designed and wrote software for build status light (Green, Yellow, Red) that management used to manage the team and used to increase urgency of software and test teams to find root cause of build failures.

Software Architect / Team Lead which designed a new fully Automated External Defibrillator (AED) which restores proper heart rhythms after cardiac arrests.

- Designed a local cloud based architecture using publish-subscribe architecture for a new AED which uses speech to instruct the user and wireless (Wi-Fi and Cellular connections) for data transmission to hospitals and ambulances to provide advance data for better patient outcomes.
- Managed overseas (India) and local team (12-15 people) to create software for the AED.
- Managed the Software requirements generation for the AED using 6-Sigma processes.
- Co-authored the Product Architecture Document with hardware engineering and systems engineering.
- Collaborated with hardware engineering to provide the best design based on product tradeoffs.
- Collaborated with systems engineering and clinical department to simplify the design and the user interaction.
- Wrote the code framework (C++) for KL15 and iMX6 to kick-start the AED project.

Physio Sonics Corporation
Mar. 2011 to Apr. 2012

Director of Engineering/Infrastructure

Principal Manager to develop the company infrastructure to meet FDA regulations and product development of a Ultrasound system which measures blood flow within the brain.

- Created and implemented a quality system that was compliant with Federal Regulations Title 21, Part 820. – Product was given 510K.
- Managed product design to meet and test to 60601- unit passed all testing.
- Created and managed document control department including creation of all document control procedures.
- Created and managed receiving and incoming inspection including all traceability and evaluations of suppliers, contractors, and consultants.

- Created and managed the prototype and production of subsystems and the entire Ultrasound system for sale and distribution.
- Managed and co-designed the product chassis and headset.
- Managed and designed product packaging (labeling, paint, customer assembly) and product shipping packaging.
- Managed 6 people to make the product happen.

Siemens Medical Corporation
April 2010 to Sept. 2011

DSP Software Engineer (Contract)

Principal engineer to drive system migration to realize cost reduction and hardware enhancements for new product features. Consultant and developer to product verification team to change validation test methods to rigorously test product software.

- Migrated software from TMS320C6701to TMS320C6713 including creation of new make files and linker command files.
- Designed and developed screen capture and comparison algorithm for validation of product software for the test team.
- Created library of Over The Counter software to meet new 60601 FDA regulations.
- Persuaded the test team to use UML and Doxygen to help with design contemplation and documentation for better design, implementation, and maintainability.
- Restored C# and C++ code base to zero warnings, started with over 2000, and provided better documentation of code base for maintenance and new development.

EKOS Corporation	Entrepreneurial Medical Device Corporation leading the world in the use of
Sept. 2001 to Dec. 2009	ultrasonics for the enhancement of drug infusion

Senior Systems Engineer / Software Engineer / Test Engineer

Principal systems engineer in charge of system development for a medical instrument which resolves blood clots utilizing ultrasound.

- Designed and developed low-level driver code and mid-level product software in C++ which ran on Motorola 68332 utilizing ThreadX. Driver-code included SPI and one-wire communications, plus glue logic of A/D, D/A, and graphics chips. Algorithms within mid-level software controlled power based on predicative model of temperature absorption which allowed non-linear modulation of ultrasound decreasing treatment time by more than 50%.
- Lead software verification and validation of multi-threaded embedded software products (PT-3, PT-2B, PT-3B, and memory capsule) using SCRUM processes.
- Responsible for system integration and hardware verification testing which allowed all products to receive 510K approval.
- Designed and developed script language to allow test automation of product software and production units. Software was a PC based application written in C++ using MS Visual Studio.
- Designed and developed PIC SPI communications software, which communicated to 68332 allowing control of power into the ultrasound catheter. Project required bit-bang techniques in assembly language because PIC did not have built in SPI hardware.
- Created a PC based software utilizing IEEE-488 to control instrumentation used within the Biology Efficacy Lab to help prove the "Effects of Modulated Ultrasound" other algorithms.
- Designed and wrote Computer Aided Software Engineering tools which allowed requirement traceability through project lifecycle decreasing documentation time by 30% - all rights retained.
- Created test plans, project plans, requirement documents, lead code reviews, and implemented process changes.
- Wrote Ruby scripts to auto generate reports from log file of product to provide continuous improvement product algorithms and safety.
- Obtained Six Sigma Green Belt Certification – 100% on final test.

Eldec Corporation	Leader in sensor systems for non-contact switch environments and actuation
Dec. 1996 to Sept. 2001	control providing feedback to aircraft flight systems

Contract Software Engineer / Test Engineer

Designer and programmer of test systems which automated testing of software under development with extensions to production test.

- Designed, implemented, and deployed a scripting language designed to automate testing for an entire development division. Project allowed Systems Engineering, Development Engineering, and Production to utilize common equipment and software during OEM lifecycle - DO–178B compliant.
- Designed real-time aircraft simulator for testing flap-skew sensor system, hardware and software, allowing 100% testing of product - DO–178B compliant.
- Created drivers for PC add-in boards - ARINC 429, ARINC 629, RS-422, and RS-485.
- Created requirement documents and implementation plans.

AT&T	Division was forerunner in airborne communications and in-flight entertainment
AT&T Dec. 1995 to Dec. 1996	Division was forerunner in airborne communications and in-flight entertainment

Contract Software Engineer / Test Engineer
Designer and programmer of ISDN simulator test system.

- Designed, implemented, and deployed a scripting language for ISDN test system which decreased personnel needs by 10% while increasing software bug detection by 25%.

Applied Microsystems Nov. 1990 to Dec. 1995	World leader in Microprocessor Emulation and Software Test Tools

Test Engineer
Programmer and systems engineer creating test systems for production.

- Developed test hardware and software of 68332/1, 80186/286/386, 80386EX, Rockwell C19/29 projects to allow product production testing and service troubleshooting.
- Wrote embedded software to test CPU emulator functions.
- Designed embedded hardware to test CPU emulator functions.

United State Air Force Oct. 1983 to Aug. 1987	Trained aircraft crews in electronic warfare and bombing accuracy using automatic tracking radar.

Radar Technician / Manager

- Airman of the Year, Detachment 14 – (1984)
- Secret Security Clearance

EDUCATION

University of Washington
    Bachelor of Science in Computer Software and Systems
    Specialized in System Development, Project Management, and Business 3.5 / 4.0 GPA (2008)
	Quality America
	    Six Sigma Green Belt
	    100% on final Test (2007)

Cascadia Community College
    Associate of Science Degree – with honors (2005)
	University of Washington
	    C++ Programming Certificate – (1998)
	    C Programming Certificate – (1995)

Edmonds Community College
    Various Management and Electronics Courses – (1992)
	Military Education Courses
	    Courses in Management, Leadership, Radar Theory, and Mechanical/Electronics Engineering.
	    Secret Security Clearance

cPrime
    Scrum Master Training (2016)
	Cypress
	    Low Power Bluetooth (2016)