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Abstract

I am an embedded systems architect with insight picked up over the course of a creative, entrepreneurial career in systems administration, network security, enterprise architecture, and embedded systems engineering. I enjoy all things embedded, and bring a "big picture" lens to projects -- from concept to board layout, bring-up, manufacturing and support -- evaluating cybersecurity concerns from firmware to cloud-scale deployment.

Professional Experience

Senior Software Engineer @ VoluMetrix   Mar 2017 - Present
Medical device innovator in non-invasive volume measurement
 - Medical device firmware development (ARM Cortex-A/M SoC/MCU, Bluetooth LE)
    featuring UI, RTOS, embedded Linux, communications and driver development
 - Mobile app development (iOS & Android) for data collection, EHR integration,
    device management and firmware update
 - Cybersecurity officer - firmware analysis, threat/risk assessment, mitigation

Consulting Application Engineer @ HCA   Nov 2015 - Mar 2017
Private Healthcare provider
 - Project lead in internal, enterprise software development group, responsible
    for architecture, implementation, team management and execution
 - Led implementation and evangelism of modern agile development approaches and
    tools within legacy dev group

CTO @ XOEye Technologies   May 2013 - Aug 2015
Wearable technology startup, tele-presence for field service industry
 - Led hw and sw development for XOEye's custom wearable computing platform,
    providing smart-glass-based enterprise telepresence
 - Managed developement of XOEye's own smart glass prototype hardware, guiding
    mech. and electrical engineering work through design, part selection,
    schematic capture, layout, industrial design, rapid prototyping
 - Worked with external engineering group to accelerate development of
    advanced prototype for image stabilization, stereoscopic vision, and other
    advanced computer vision tasks using pre-release Altera FPGA
 - Led development of Linux-based firmware for XOEye ARM-based hardware
 - Led development of Java-based runtime environment for non-visual wearable
    applications w/ high quality text-to-speech
 - Led development of Android application for tele-presence and content

CTO and Co-founder @ Campground Automation Systems   Aug 2007 - May 2013
Outdoor recreation software company
 - Designed hardware and authored firmware for wireless mesh relay units for
    control of RV park amenities

- Managed manufacturing partners for manufacture and assembly
- Led architecture and design of Java EE service-oriented, real-time
  enterprise reservation management platform w/ unattended self-service
  kiosk system, custom control hardware, web-based resort management, camper
  portal, business rules / data tier and web services interfaces
- Established and promoted agile software development tools and practices
- Promoted, leveraged and participated in open source frameworks and tools
- Negotiated strategic partnerships, technical integrations
- Established SaaS business model with clear and simple pricing strategy for
  market previously slow to adopt subscription model
- Developed corporate and product branding, advertising / messaging

Education

BS, CSA, CS, Southern Adventist University   2002
         Deans list, Outstanding Senior Award - School of Computing
MSCIS, University of Phoenix   2005

Skills, Tech, Stacks and other Stuff...

 - Languages: C/C++, Swift, Java, Groovy, Kotlin, Scala, PHP, Forth, ObjC, C#,
    AVR ASM, 8051 ASM, Z80 ASM, Python, XML/XSLT
 - Embedded: STM32, NRF5x, RISC-V, NXP i.MX6, TI OMAP, Cortex-M/A, Atmel AVR,
    Altera / Xilinx (SoC) FPGAs, Ambarella (A7L), Linux ARM, Linux MIPS,
    FreeRTOS, buildroot, crosstool, XBee, TINI, Rabbit, M2M, Android
 - Architectures: x86, ARM, PowerPC, m68k, Espressif/Xtensa, RISC-V, SPARC,
    6502, MIPS, AVR, MSP430, PIC, FPGA
 - Databases: MySQL, MongoDB, PostgreSQL, MS SQL, Derby, Firebird, H2, SQLite,
    (Memcached/ElastiCache)
 - Frameworks / Libraries: STM32 CubeMX, BlueNRG, etc., ESP-IDF, LVGL, SwiftUI,
    Grails, OSGi, Node.js, Hibernate, Spring, Drools (JBoss Rules), Batik,
    Swing, AWT, JAX-WS/JAXB, JAIN-SIP, Jasper Reports
 - Tools: Vim, Git, Gradle, Maven, Ant, Trac, Subversion, JIRA, Confluence,
    Hudson/Jenkins, Xcode, Android Studio, VS Code, Eclipse, Netbeans, MPW
 - Misc: Amazon AWS, Tomcat, Jetty, Glassfish, Knopflerfish, Karaf, Apache,
    XHTML/CSS, XML-RPC, SOAP, SVG, JNI, Audio/Video streaming/comms: RTP/SRTP,
    SIP, H264, WebRTC, Kurento, pjsip, Text-to-speech (TTS), IPsec, IPv6,
    AppleTalk, firewalling/routing, TI Ducati, gstreamer, BLE/GATT
 - OS: Linux, iOS, Mac OS (System 6+), Android, Solaris, Windows Server NT -
    2003, Novell NetWare 4 & 5, FreeBSD, OpenBSD

Interests

Backpacking, Snowboarding, Canoeing, Retrocomputing, Blender / 3D (modeling,
animation, art), Robotics, Cooking, Travel, Biblical Greek