svigil777@gmail.com Robotic Obstacle Recognizer Skills Demonstration Project
svigil777, Skype http://svis.com/Proj/ObstacleDetector

Objective Develop critical real-time embedded software.

Experience/ Qualifications Over 20 years extensive and progressively responsible experience specifying, implementing and verifying critical real-time embedded systems and software while refining processes and driving deliverables to completion.

Education

BS Electrical Engineering, University of Washington, Seattle, WA
Ground School Flight Training, Rockwell Collins, Cedar Rapids, IA

Skills

- **Languages** – C, C++, Javascript, Java, ADA, PERL, HTML, Bash, NT Command, SQL.
- **Protocols** – SPI, MS 1553, ARINC 429, 629, 661, 653, 664, TCP/IP v.6, CAN, AFDX, IEEE 1394 Firewire, TTP, LTE.
- **Operating Systems** – Lynx, VxWorks, Integrity, RTXC, DEOS, CENTOS, openSUSE, Ubuntu, SELinux, RedHat, Windows NT, VirtualBox, Petalinux, Debian.
- **Analysis/Design** – Unified Modeling Language (UML), Capability Maturity Model Integration (CMMI), Object Oriented Technology In Aviation (OOTiA), Personal Software Process (PSP), Team Software Process (TSP), Agile.
- **Tools** – AtmelStudio, PX4 Toolchain,Verotrace, DJI Onboard SDK (OSDK) 3.7, GIT, Eclipse, Workbench, OCD, ICE, Rhapsody, Rational Rose, Matlab, SIMULINK, Rational Test Real-Time, Multi, Tornado, GDB, SingleStep, Clearcase, ARM Developer Suite, Java Development Kit, Visual Studio, Code Warrior, Visio, DOORS, Requirements Gateway, MS Project, PVCS, Code Composer Studio, LDRA, VectorCast, Livelink, Visual Source Safe, TortoiseSVN, Subversion, Cockpit, EDMS, Synergy, Doxygen, SQL Server, Access, Birdstep RDM, RAIMA Relational Database Manager, Jira, BitBucket, PREP.
- **Hardware** – Atmel AVR 8-bit, STM32F4, Arduino, PX4, Ardupilot, XDS510, TMS320, F281x, Pentium, Atmel, Sam, G55, ARM, Cortex, M4, DSP, BMI055, board & chip level, Xilinx RFSoC ZCU216, ZU49DR, Atom, memory mapped I/O over PCIe for FPGA control.

Employment/Contract Experience

Senior Contract Software Verification Engineer, Collins Aerospace — Melbourne, FL (remote , 2/23 - present)

Developed tests that exercised aircraft functions and AFDX buses… Traffic (TFC), Weather Radar (WXR), Terrain Avoidance System (TAWS) for application on 777x and 787. SYSIO board for the Collins Hybrid GPS.

Senior Contract Software Engineer, Nokomis — Canonsburg, PA (4/22 – 1/23)

Software defined radio, RFSoC ZCU216 board configuration, CPU/FPGA communication over PCIe, C/C++, Ubuntu LINUX, Petalinux, Xilinx ZU49DR processor, bsp, boot loader development.

Senior Contract Software Engineer, Canyon AeroConnect — Prescott, AZ (1/21 – 3/22)

Developed requirements, design, code, informal confidence testing to realize LTE cellular data communications over radio for first responders in aircraft in UK airspace. ESMCP Emergency Responder Radio, per DO-178C standards. BSP development: LTE cell connectivity, targeting Atom Processor, utilizing PCIe via FPGA memory mapped I/O.

Senior Contract Software Engineer, Lynx Software Technologies — San Jose, CA (1/19 – 11/20)

For F-35 Joint Strike Fighter, reverse engineered TCP/UDP/IP source code based on an older version of BSD UNIX. Recommended changes as appropriate to conform to ARINC 644 requirements. driver level networking software, Lynx OS network stack for DO-178, TCP/IP v. 6, C language, DO-178C, FAA.

Senior Contract Software Engineer, Indemnis Anchorage, AK (5/18 – 12/18)

Device drivers for accelerometers and gyroscopes on the BMI055 sensor over SPI bus, embedded C++, equations of Motion, Nav and MATLAB models for Atmel Sam G55, ARM Cortex M4F, GIT, Jira.

Senior Software Engineer, Guerbet/Liebel-Flarsheim Cincinnati, OH (10/14 – 4/18)

Specified, designed, implemented, released IEC62304 FDA compliant motor control, boot, accelerometer driver, parts obsolescance, BSP and video software for Illumena Neo injector, medical diagnostic device using embedded C and C++. Debugged and reverse engineered distributed processing on SPI bus network with 3 PIC processors communicating with 3 68332 Motorolla processors. Participated on an international medical diagnostic CAN4 work group.

Senior Contract Software Verification Engineer, Verocel Boston, MA (1/14 – 9/14)

Verified tests for Part 25 ADA software for Commercial Avionics Flight Management System (FMS) to DO-178.

Senior Contract Embedded Software Engineer, L-3 Communications Cincinnati, OH (4/13 – 8/13)

Worked with hardware designers to create ISR/GPIO based device driver using VxWorks 6.7 shmem driver to interface via FPGA for PCIe Bus communication in a commercial radio on International Space Station using objected oriented C++.

Senior Contract Software Engineer, Beckman Coulter, Diagnostics Indianapolis, IN (10/12 – 3/13)

Developed BSP, embedded C++ code for C3 medical diagnostics. Guided team to FDA compliance.

Senior Contract Software Engineer, Canyon AeroConnect (formerly Cobham Aerospace) Seattle, WA (2/12 – 8/12)

Developed embedded C Language, BSP, helicopter FMS using VxWorks653 with Workbench.

Senior Contract Software Engineer, Honeywell AES Long Beach, CA, Phoenix, AZ (6/10 – 8/11)

Implemented CH-47 helicopter engine maintenance displays for Rockwell Collins MFD, ARINC 611, VxWorks, OpenGL.

Verified and validated flight controls software for the Boeing 787 Dreamliner written in the C language.

Senior Contract Software Engineer, IMS Company Long Beach, CA (11/08 – 3/10)

NG: Flight readiness signoff on Firescout autonomous helicopter R/T embedded sw, Microsoft Access.
Boeing: Built web enabled document/literal binary file upload client/server pair using Apache AXIS2 SOAP, JDK.
NG: For GMR program, tested SELinux based JTRS JWIN network config and encryption.

Senior Contract Software Engineer, Bell Helicopter Fort Worth, TX (6/08 – 10/08)

DO-178B FMS real-time embedded C unit test, circular I/O buffers, NVM access, memory and text proc.

Contract Senior Verification/Validation Engineer, Hamilton Sundstrand Rockford, IL (remote , 1/08 – 5/08)

Wrote DO-178B test cases to verify Dreamliner engine controls. Built an openSUSE LINUX platform.

Contract Senior Software Engineer, Crane Co. - Aerospace Group Seattle, WA (10/07 – 12/07)

Designed per DO-178B real time embedded C++ military system software, BSP. Used Green Hills Multi Debugger.

Contract Senior Software Engineer, Parker-Hannifin - Aerospace Group Irvine, CA (8/07 – 10/07)

Evaluated Vectorcast and LDRA code coverage tools. Integrated LDRA instrumentation into code base for code coverage metric gathering on live system. Used Green Hills Multi Debugger.

Contract Senior Engineer, Systems, Rockwell Collins, Inc. Cedar Rapids, IA (6/06 – 8/07)

Created a plan for integration of all the subsystems for the next generation Honeywell flight deck that flowed into test plans, procedures in conformance to DO-178B.

Contract Senior Engineer, Software, Lockheed-Martin Binghamton, NY (4/06 – 6/06)

Designed Object based C software for helicopter data-collector, flight displays/FMS using ARINC 653, 429, VxWorks.

Senior Principal Engineer, Software, L3Harris Dayton, OH (9/04 – 2/06)

Specified and implemented C++ sw for fault tolerant flight displays/FMS using Integrity OS, Green Hills, with VectorCast.