Lightspeed *Technologies* LLC

"AVIONICS, TELECOM AND POWER, DELIVERED AT THE SPEED OF LIGHT"

GABRIEL VLAD - Chief Technology Consultant

PROFILE

Over 20 years of hands-on experience in all phases of embedded systems, software and firmware R&D for the aerospace, automotive and telecom industries, including system and sub-system architecture, detailed design, development, testing/verification/certification, design for manufacturing. Numerous patents related to avionics, vetronics and telecom granted and pending. Proven technical and management leadership skills with P&L responsibilities. Proven pilot, bringing real-world cockpit experience into the lab and vice-versa. Military service. Extensive hands-on experience in real-time systems, software, firmware and hardware development:

- Commercial and military avionics and telecom protocols: ARINC avionics protocols (429, 1553, 1773, etc.), AFDX, CAN, MIL-STD protocols, DOCSIS, DECT, WiMAX, GSM/GPRS, CDMA, FastE/USB, Fiber Channel, variety of custom wire/light speed protocols, etc.;
- FAA and MIL-STD certification: DO178B/C, DO254, DO160, MIL-STD-810, etc.;
- Hardware/processors: ARM, DSP, MIPS, PowerPC, ColdFire, FPGA embedded processors, various PHY/MAC cores, various 8/16/32-bit microcontrollers (Broadcom, Motorola, TI, Altera, Xilinx, Zilog, etc.);
- RTOS: GHS Integrity-178B, VxWorks, Linux, OSE, pSoS, VRTX, Micrium, QNX, etc.;
- anNguages: C/C++, Assembler, MATLAB, Python, PERL, UNIX, etc.;
- IDE: Eclipse, Tornado, Workbench, custom IDE's, etc.;
- Simulators and emulators: dSpace, VectorCAST, NI LabView, MATLAB, Simulink, IFR4000/IFR6000, custom GPS constellation simulators, various TI/Motorola processor emulators, etc.;
- Lab test instrumentation: logic analyzers, oscilloscopes, network analyzers, programmable attenuators, cellular and cable protocol analyzers, RF delay generators, etc.;
- Configuration management, requirements analysis/tracing, defect tracking tools: DOORS, MKS, ClearCase, SVN, Continuus, DDTS, etc.;
- Patents for key concepts related to innovative avionics, vetronics and telecom;
- Proven pilot (including IFR, multi-engine, high-performance, high altitude, turbine) holding certifications for all types of aircraft, surviving two incidents of dark cockpit in IMC.

PROFESSIONAL EXPERIENCE

2015 - Present   Northrop Grumman - Rolling Meadows, IL,

USA Defense Aerospace Contractor   (Systems/Software /Tools)

Critical contributor at system design, software, testing, tools development levels for classified projects involving avionics and mission critical systems design, development and systems integration for both military aircraft and rotorcraft.

2014 – 2015   **CMC Electronics** – Sugar Grove, IL, USA

Senior Staff Software Engineer

   Full cycle system/software development and verification per the DO178B/C process for the Beechcraft T6 Block Point 1 defense aerospace project (under ITAR and other confidentiality agreements):

- DAL A/B/C system and software development and verification (full system includes PFD/MFD, LAD, UFCP, Moving Map, HUD, MEP, etc.);
- Critical contributor, having been assigned the largest and most critical features for Blue Label and Red Label;
- Full lifecycle system/software development, including requirements (DOORS/SRATS-SRD), system, design and development (DOORS/SDD, C development, structural coverage, data flow analysis, etc.), verification (HL/BB/WB and LL, complete development and tool qual (full responsibility) of a proprietary test framework development).

2013 – 2014 **Boeing/Woodward** – Skokie, IL, USA

Senior Staff Software Engineer

System/software development and verification per the DO178B process for the Boeing KC-46 Pegasus defense aerospace project (under ITAR and other confidentiality agreements):

- DAL A flight software development and verification (flight controls, motion control, control laws, etc.);
- Critical contributor to SOI 3 for both the development side and later for the verification side;
- Full lifecycle software development, including requirements (DOORS/SRD), system, design and development (DOORS/SDD, C development, structural coverage, data flow analysis, etc.), verification (HL/BB/WB and LL, MATLAB/Python development, dSpace HIL simulator, VectorCAST).

2006 – Present **Embedded Control Systems** – Bolingbrook, IL, USA

Technical Lead – System Architect - CTO

System/software architect, IP holder, technical lead and developer throughout the full aerospace engineering lifecycle, including system/software R&D and verification per FAA DO-178/254/160 full lifecycle certification process:

2002 – 2006 **Arris (former Cadant)** – Lisle, IL, USA

Independent Contractor (Software and Firmware Design and Development Engineer)

2001 – 2002 **Unique Broadband Systems** – Toronto, Ontario, Canada

Independent Contractor (Lead Architect)

2001 – 2002 **Shure Communications** – Buffalo Grove, IL, USA

Independent Contractor (DSP Software Engineer)

1999 – 2003 **3Com** – Rolling Meadows, IL, USA

Independent Contractor (Lead Software Engineer)

1999 – 2003 **Motorola** - Arlington Heights, IL, USA

Independent Contractor (Lead Architect)

1996 – 1999 **Motorola** - Arlington Heights, IL, USA

Lead Engineer (E09)1995 - 1996 **Ameritech / OSI** - Hoffman Estates, IL, USA

Systems Engineer (Contractor)
Participated in research and development for the Electronic Bonding Project of Ameritech Long Distance Department:
- Software development of protocols and algorithms for data transfer among IXCs, local loops and legacy systems, data processing and system interfaces;
- Software development of network management software for data transfer over TCP/UDP/IP and X.25 and data processing;
- C, C++, SQL (often embedded in C and UNIX shell scripts) and SL-GMS code for real-time visual data processing and MIB management.

1993 - 1994   CERN - European Nuclear Research Laboratory - Geneva, Switzerland
Associate Research Engineer
Participated in the RD-30 Optical Discriminator project:
- Developed mathematics and physics algorithms including 2D and 3D simulation software for the Particle Physics Lab (the project attempted to trace the trajectory of photons hitting a target by analyzing the signal distribution in an array of photo detectors);
- Researched and developed fast data processing algorithms (including video compression encoding algorithm for image processing into the Wavelet domain for filtering signal frequency based on the sub-bands' widths);
- Researched and developed pattern recognition software for trajectory estimates using both DCT and Wavelet domain transforms.

Proof-of-concept work initially developed in MATLAB, later full system design for real-time wire-speed hardware only processing.

1994 - 1995   Loyola University of Chicago - Computer Science and Applied Mathematics
Graduate Assistant

1988 - 1994   Polytechnic Institute of Bucharest - Data Processing
Associate Research Assistant

EDUCATION

1994 - 1995   Loyola University of Chicago - Chicago, Illinois
Department of Mathematical Sciences - Computer Science
Major: Computer Science
M.S. Computer Science GPA: 4.00/4.00

1987 - 1992   Polytechnic Institute of Bucharest - Bucharest, Romania
Department of Electronics and Telecommunications
Major: Data Processing
M.S. Electrical Engineering
Thesis: "Real-time digital image acquisition, analysis and processing system"
GPA: General 3.90/4.00   Thesis 4.00/4.00

PATENTS

Eight patents granted, two patents pending, numerous provisionals.
Aerospace/Avionics/Military/DSP: Optical Power and Data over Fiber for Aerospace, Zero-Software Avionics, Synthetic Vision, Integrated NavCom/Avionics, Thermo-optical deicing, DSP RF.