James R. Vaigl
Rockbridge Software, LLC
Sr. Software/Systems Engineer, Owner

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Key Projects:

L-3 Display Systems – F-35 Joint Strike Fighter cockpit display: Systems engineering, software development, software requirements, software integration, and software verification activities. Software development in Green Hills Software INTEGRITY, using C on a PowerPC architecture. Requirements management and traceability using DOORS. Microsoft Visual C++ to develop Fibre Channel software integration tools. Verification activities focusing on certification of system services software and embedded OpenGL software libraries and drivers, including utilization of LynuxWorks' LynxOS. Also helped author DO-178B documentation in support of the NASA T-38 avionics upgrade. Participated in certification of C-130J avionics upgrade.

Dynamic Sensor Systems, LLC – Embedded C/C++ software for a software-defined instrumentation radar. Red Hat Linux device drivers and SW interface to control ADC/DAC FPGAs, waveform generation, signal processing software on NVIDIA K20 GPU using CUDA/cuFFT. C extensions for Ruby to expose the control/monitor interfaces to a Rails-based GUI. High speed disk storage application control and RAID configuration/monitoring.

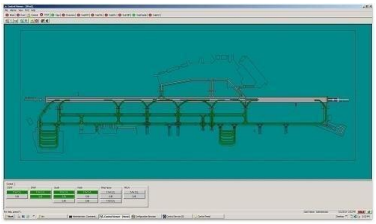
Siemens Airfield Solutions – Developing next-generation graphical user interface for runway and taxiway lighting system control and monitoring. Using Visual Studio 2005/Visual C++ and MFC to create flexible graphical views of equipment status, integrated with the control system, to provide near real-time access from anywhere on the airfield network.

L-3 Avionics Systems – Key team member developing the aircraft navigation features for the SmartDeck integrated flight display and control system. Focus on RTCA/DO-229c WAAS GPS navigation. Developing in C++, according to FAA's OOTiA principles, using Green Hills Software's MULTI development environment and INTEGRITY real-time operating system on a multi-processor MPC8245 hardware platform. RTCA/DO-178B level B software requirements capture using DOORS and UML. Simulation and development test tools written in Microsoft Visual C++ on Windows.

Ryan International Corporation – Member of a small team developing a real-time embedded avionics hazard display. Performed digital hardware and FPGA troubleshooting, software system design, implementation, testing, and helped drive a Level D FAA certification, using practices based on the Department of Energy systems development methodology, modified to suit RTCA/DO-178B requirements. Implemented in C on a PowerPC platform using Green Hills Software's INTEGRITY real-time operating system. Main software development efforts included RTOS board-level software, drivers, and sensor interfaces, but also contributed to OpenGL application software. Performed initial work on RTCA/DO-200A aeronautical database development.

BFGoodrich Avionics Systems, Inc – Real-time aircraft cockpit *Terrain Awareness & Warning System*, implemented in C in accordance with an ISO-9000 certified software development methodology. Implemented on PowerPC 8240 using MQX RTOS. Helped define system requirements and user interfaces, implemented key software components, and participated in FAA required DO-178B level C certification. Wrote mock-up display software in Visual C++ on Windows NT and participated as team member writing simulator to drive FAA-required Human/Computer Interface evaluations. Simulator software included a Windows device driver to interface with realistic flight simulator hardware. Also wrote distributed test application components that communicated via sockets, UDP, and RS-232, simulating avionics sensor inputs.

ADB-Alnaco – Team member for two years creating a state-of-the-art, distributed, fault-tolerant client/server control system for runway and taxiway airfield lighting at the Gardermoen airport in Oslo Norway. Used Visual C++ on Windows NT to create applications and DLLs to provide a graphical rendering of the airfield, to be used by maintenance workers and air traffic controllers to control, monitor, and diagnose the system. Also wrote multithreaded socket and SNMP-based network components to interface with intelligent control panels used by air and ground traffic controllers.



Stillwater Computing Services – Wrote software for a PCMCIA cryptographic flash memory storage device, including a Windows application, a C++ library implementing the PKCS #11 (Cryptoki) programming interface, and firmware interfaces and C++ classes which wrapped them.

Bob Evans Restaurants – Consulted on Windows NT application architecture and ported OS/2 applications to Windows NT. Converted dial-up credit authorization application to TCP/IP.

Previous Employment:

Unlimited Solutions, Inc., Columbus, Ohio Group leader for Platform Technologies group

Responsible for design and implementation of C, C++, and Visual Basic APIs for programmers writing a retail store software automation system for Windows NT. Provided point-of-sale hardware abstraction layer for applications. Supervised and helped to develop a client/server database API providing network and server fault-tolerance for ODBC and other PC databases. Created applications for performing on-line credit card authorization and remote system maintenance using sockets and RPC.

The Ohio Supercomputer Center, Columbus, Ohio Senior Supercomputer Specialist

Member of the Trollius group, producing the LAM parallel programming environment for networked workstation clusters running UNIX and for distributed memory parallel computers. Responsibilities included operating system internals, network communication components, user commands, utility programs and tools, documentation and customer support. Ported components from SunOS and Solaris to AIX, HP-UX, IRIX, and DEC ULTRIX. Taught PVM and MPI programming workshops. Used Microsoft Visual C++ and OLE 2 on Windows NT to provide parallel/distributed application development libraries supporting distributed objects via sockets and message passing.

BCD Technology, Dayton, Ohio Software Engineer

Member of the group responsible for NCR's enterprise-wide network management product, NCRNet Manager. Wrote a library implementing AT&T System V UNIX IPC mechanisms (message queues, semaphores, and shared memory) on top of OS/2 IPC mechanisms. Other responsibilities included architecting OS/2 communication facilities and porting existing UNIX code to OS/2 and Lan Manager. Other projects: Co-developed extensions to PVCS version control software to facilitate joint development with a remote site. Implemented IBM SNA LU6.2 for OS/2 wide-area network for use in a banking environment. Ported object-oriented SCSI RAID disk management utilities to OS/2.

NCR Corporation, Dayton, Ohio Software Engineer, Workstation Products Division

Member of the OS/2 development team. Responsible for adapting, writing, and testing device drivers for NCR PC/workstation hardware. Solely responsible for directing all aspects of NCR's version of OS/2 1.1 with Microchannel Architecture support. This included debugging NCR's SCSI disk ABIOS, repairing Microsoft's ABIOS drivers, working closely with Microsoft developers to resolve kernel bugs, and orchestrating the final certification of the software on NCR and IBM hardware. Technical lead of the NCR group producing the drivers Microsoft released with their OS/2 1.2. Received the *Outstanding Contribution Award* and *NCR Technical Achievement Award.*

Skills:

Languages**:**	C/C++ Also Visual Basic, FORTRAN, assembly: PowerPC and Intel
Operating Systems:	Windows, Linux, UNIX, and real-time: Green Hills INTEGRITY, Precise MQX

Education:

Master of Science**,**	Computer and Information Science, March 1994, The Ohio State University. Thesis: "The Parallelization of a Finite Element Analysis Code for a Distributed Memory Multiprocessor."
Bachelor of Science**,**	Engineering - Computer and Information Science, July 1988, The Ohio State University. Emphasis on hardware/software interaction.