

Brief Resumé of Robert J. Brown*

Computer Scientist, over 25 Years Experience

P. O. Box 166, Warsaw KY 41095 1-847-613-8411

<http://www.elilabs.com/~rj/> rj@elilabs.com

Also available in postscript, pdf, and text. A detailed chronological resume is also available.

Summary

Mr. Brown's professional experience spans over 25 years and covers a broad range of areas in business and computer science. He has founded two corporations and has been instrumental in developing the technology base for venture capitalizing four others. He has consulted to and conducted R&D activities for a number of large, medium, and small companies. He has conducted seminars on leading edge technologies, published papers in recognized journals, and given presentations at technical conferences. He has been a full-time consultant since 1986.

Partial Client List

3com	GE	IBM	Lucent	Motorola
Alcatel	GM	ITT	Magnavox	Panasonic
Cummins	Grumman	Loral	Marconi	Zenith

Significant Projects

Medical

- Implemented remote control for medical imaging devices permitting operation over the internet, with considerations for safety and HIPPA privacy requirements.
- Designed and implemented the embedded control software for an automated hemocytometer.
- Designed and implemented The Glucographer, a web-based blood glucose charting tool for diabetics.

Video

- Developed on-chip firmware to control a single-chip MPEG-2 video and audio decoder ASIC.
- Developed architecture for a Transport Stream Multiplexer, to separate multiple MPEG-2 transport streams into component MPEG-2 program streams, and mix these program streams into new transport streams.
- Worked on several set-top box and home gateway system architecture specifications.

Aerospace

- Performed system integration of man-in-the-loop distributed ad hoc wireless sensor networked anti-personnel land mine.
- Designed dive and steering plane computer control system for the Navy's LSV-21 project.
- Helped upgrade radar and hydrophone range tracking system for the Navy's AUTEK weapons range.
- Performed system integration and test of the F14 Tomcat weapons control system.
- Worked on compressive receiver and audio transcription software for NSA electronic surveillance receiving system.
- Helped implement a virtual reality component for networked combat flight simulators.
- Designed and implemented a real-time hardware-in-the-loop jet engine simulator.
- Designed a simulator and emulator for the GOES weather satellite scan control system.

Cryptography

- Worked on cryptographic library for military satellite communications project to be a FIPS validated cryptographic module.
- Developed Stegafax, a covert messaging system to permit messages to be securely exchanged between parties without detection by hostile eavesdroppers.

Networking, Telephony, and Wireless

- Performed requirements gathering and elaboration for Bluetooth support for a telematics product.
- Developed firmware to control custom ASICs for ATM switching fabric and line card interface circuitry.
- Helped design and evaluate tradeoffs in overall system architecture of 2-way digital cable system.
- Helped specify and design an MCNS cable modem and supporting infrastructure.
- Implemented a web server embedded within an external cable modem, permitting the user to set-up, adjust, and monitor the cable modem.
- Implemented enhancements for a test tool for GSM cellular telephones.

*©2005 Robert J. Brown III. All Rights Reserved Worldwide. Permission is given for prospective or actual clients or employers to make copies of this resumé without charge. This notice must be part of that copy. Permission is explicitly not given to create derivative works from this resume. Any changes to this resume must be approved by the copyright holder before they may be published.

- Performed requirements analysis and top level design for TA-909 “Fiber To The Curb” telephony equipment.

Embedded Applications

- Designed object oriented code to handle multiple versions of different ASICs with a single ROM load.
- Designed transparent interface of CPU firmware to VHDL circuit simulation to aid in ASIC and firmware checkout.
- Designed and implemented a flash resident embedded file system.
- Designed and implemented a memory resident real-time multi-process relational database system with a non-blocking transaction monitor.
- Designed and implemented simulator, cross-assembler, cross-compiler, and RTOS for a CPU core to support firmware development in a Verilog simulation environment.
- Implemented BSP for OSEK portable real-time operating system for a multi-cpu ECU.
- Evaluated Java Virtual Machines (JVM's) for embedded system deployment.
- Implemented a computerized control system for a new automatic transmission for small trucks and buses.

Artificial Intelligence and Robotics

- Performed proof-of-concept development for diagnostic expert systems for complex electro-mechanical equipment used in automated manufacturing.
- Specified and prototyped an expert system for determining the manufacturability of machined parts.
- Performed research on motion control and force sensing algorithms for a manufacturing robotic system.
- Designed the computer control system and software for a series of robot submarines (ROVs).
- Developed toolchain and firmware to control a robotic cutting tool that operated inside of a buried pipeline.

Computer Science

- Designed and implemented the Dreams real-time object oriented programming system.
- Designed MOOSE (Machine for Object Oriented Software Execution), a virtual machine intended to be realizable in hardware that has special hardware provisions for dynamic binding object oriented programming.
- Designed FISH, Forth In Silicon Hardware, a Harvard architecture CPU core optimized for very fast looping and dot-product operations as used in signal processing and neural network applications.
- Designed a fast, general purpose C++ object oriented thread-safe generic state machine implementation.
- Helped prototype error correcting coding algorithms for magnetic recording devices.

Configuration, Build, Test, and Release Control

- Designed automatic tools to generate protocol validation test suites using formal methods.
- Designed and prototyped multi-targeted cross build system. Designed automatic unit test strategy.
- Re-engineered the build system for a large multi-cpu project involving over 4000 directories of source files. Reduced developer's re-build time from 4 hours to 2.5 minutes.

Systems and Network Administration

- Designed and implemented the VITO (“Visualizing Internet Traffic Online”) network monitoring system.
- Designed and implemented The Shadow automatic network backup system.
- Maintains firewall, network intrusion detection system, anti-spam filter, and web and email servers.
- Analyzes forensic data pertaining to intrusion attempts and other exploits and anomalous activity.

Patents

- U. S. Patent Number 4,847,781 for an “*Energy Management System.*”

Publications

- Dreams: A Message Passing Object Oriented Metaphor for Forth. *The Journal of Forth Application and Research*, Vol. 6 No. 4. 1994.
- A Timed Event Network Scheduler. *Dr. Dobbs Journal*, February 1989.
- Committee Networks: What they can and cannot do. Proceedings of the 1987 Rochester Forth Conference, *The Journal of Forth Application and Research*, Vol. 5 No. 1.
- An Efficient Algorithm for Large Priority Queues. *Dr. Dobbs Journal*, June 1987.
- An Artificial Neural Network Experiment. *Dr. Dobbs Journal*, April 1987.
- The Boca Raton Inference Engine. *Dr. Dobbs Journal*, April 1986.

Education

- Bachelor of Arts in Mathematics from Dowling College.
- Graduate studies in Mathematics and Computer Science at Florida Atlantic University.

Awards

- Mathematical Association of America Award.
- National Science Foundation Scholarship.