



webcontact@zachbuckner.com

<http://www.zachbuckner.com>

## Objective

To make tomorrow's discoveries, create tomorrow's technology, and define tomorrow's businesses.

## Education

### **University of Virginia, Charlottesville, VA**

Master of Science, Electrical Engineering

Graduated in May, 2004.

### **University of Virginia, Charlottesville, VA**

Bachelor of Science, Electrical Engineering, 2002

Dean's List, Fall 2001 and Spring 2002

1<sup>st</sup> Place, Undergraduate Biomimicry Research Award

## Experience

### **Elder Research, Vice President of Technology**

January 2005 - Present.

- Led the development of the Analytic Engine for *DecisionCenter*, a major product for Peregrine Systems in San Diego (now Hewlett Packard). A case study that documents this effort is available [here](#).
- Led the development of Centrifuge, a commercial software package for time series analysis and Genetic Programming. This package is used by hedge funds and funds-of-funds to develop cutting-edge investment instruments.
- Led the research effort to redesign the back-end text mining algorithms used in the [Interceptor](#) software package by [Digital Reasoning Systems](#).
- Currently leading a research effort to improve the predictive models in [Verelight's Scout](#) device, a noninvasive tool for detecting diabetes.

<http://www.datamininglab.com>

### **Rockbridge Guitar Company, Director and Business Manager**

May 2005 - Present. I am planning the expansion and growth for this successful guitar company. Rockbridge Guitar Company is widely known for producing some of the world's best acoustic guitars.

<http://www.rockbridgeguitar.com>

### **GE Fanuc Automation, Senior Embedded Software Engineer**

May 2004 – January 2005. As a member of GE's Lead Professional band, I plan and

perform system design for embedded software development projects. My first completed project at GE was recognized with an award and bonus for hard work, enthusiasm, leadership, and quick execution.

### **University of Virginia**

- Sole inventor of a promising industrial sensor. This technology is currently being commercialized by the University of Virginia's Patent Foundation, and a licensee is currently under contract. This technology is covered by two PCT Patents; the first of these patents is [available online](#) and the second will be published in February 2006. Reference: Dean of Engineering School, James Aylor at (434) 924-3593 and Professor Michael Reed at (434) 924-6309.
- Developed Lleta, a specialized distributed computing platform that integrates legacy hospital information systems. This platform consists of a fully-custom virtual machine architecture, a shared-memory network operating system, an assembler, and a C compiler. The Lleta prototype underwent cooperative development with OmniPres, Inc., a startup venture supported by the University of Virginia's Darden Progressive Incubator. References: Tim Estes at (434) 466-2408 and Professor Chris Milner at (434) 982-2688
- Built an FPGA-based microprocessor, capable of executing over 30 instructions. This project won first place in the final competition for an *Advanced Digital Design* class. Reference: Professor John Lach at (434) 924-6086

### **Portris, Cofounder**

Cofounded and provided much of the inspiration and vision for this successful software company. This company acquired large-scale investment and attracted Fortune 500 customers and management. Portris is no longer in business, but there is an abundance of information still available through Google:

<http://google.com/search?q=portris>

Reference: Cofounder Charles Henderson at (540) 784-0204.

### **Trimation**

- Designed and built an add-on module for a programmable logic controller (PLC). This module decodes time-of-day information from a GPS satellite.
- Designed software to configure and monitor PLCs. This software is part of a toolset called MaxOn, which provides hot backup redundancy for critical control applications. The software is currently licensed to GE/Fanuc, Inc and was awarded one of the '40 Best Products of 2000' by Control Engineering Magazine.

"Reference: Keith Curtin at (434) 978-1151

<http://www.gefanuc.com/literature/pdf/GFA-214.pdf>

### **Virginia Transportation Research Council, Research Assistant**

Designed tools to test materials and soil. These tools harnessed a variety of technologies: time domain reflectometry, ultrasonic imaging, acoustic emission analysis, neural networks, instrumentation and data acquisition. I built a neural network-based filter that identified 'cracking sound' acoustic emissions from steel beams, outperforming human inspection. The project was one of two 1<sup>st</sup> place winners of the University of Virginia's 1998 Biomimicry Research prize.

Reference: Professor Edward Hoppe at (434) 293-1900 and Professor Celik Ozyildirim at (434) 293-1977

<http://www.virginiadot.org/vtrc/>

## Skills

### Management

Experience: Business planning, proposals, presentations, finance, accounting  
Industries: Federal government, hedge funds, fund of funds, banking, Internet gaming, industrial processes, sensing and control

### Systems Engineering

Topics: Discrete event simulation, optimization, data mining, text mining, predictive modeling, neural networks, genetic Algorithms, genetic programming, graph analysis, link analysis, financial Engineering  
Tools: Clementine, Matlab, CART

### Hardware

Computer Architecture: Design, current research  
Design Automation: Algorithms  
Digital and Analog Design: VHDL, FPGA-based designs, PCB, Orcad, Mentor  
Instrumentation and I/O: Sensors, data acquisition, signal processing, low-level programming

### Software

Languages and Tools: Assemblers, Java, C++, C, Scheme, Matlab, CORBA, RMI, C#, ASP.NET  
Operating Systems: Win32 and Linux internals, system programming, device drivers  
Compiler Design: Compilers, assemblers, interpreters, Antlr  
Networks: Client/server and distributed applications, infrastructure, telephony  
Theory: Distributed computing, neural networks, genetic programming