Eric Hernandez

1234 XYZ St. (123) 123-4567
Long Beach, CA 90808 engr.eric@gmail.com / eric.hernandez@csulb.edu

Computer Engineer with 15+ years of experience in industrial and consumer electronics, emphasizing in Embedded Systems, Firmware, Analog Interfacing, FPGA and System-On-Chip design. Capable of rapid prototyping, PCB design and soldering to develop, debug, troubleshoot and quickly bring designs to market.

Education:

Master's GPA: X.X

2009–2013 California State University, Long Beach (CSULB)
Master of Science, Computer Science with an option in Engineering

2001–2007 California State University, Long Beach (CSULB)
Bachelor of Science, Computer Engineering

Skills:

Languages and Architectures: C/C++, Assembly (80x86, 8051, Arm, AVR, PIC), Verilog, VHDL, ARM, Xilinx Spartan, Zynq SOC, PIC, AVR, C2000, FreeRTOS (Real-Time Operating Systems)
Development Tools, IDEs and EDA Tools: GNU Toolchain, Eclipse, Code Composer, IAR, Keil, Cadence Tools, Xilinx ISE/EDK, Vivado, LTSpice, Multisim, Altium, Subversion SVN Revision Control, Mercurial Distributed SCM.
Lab and Test Equipment: Oscilloscope DSO & MSO, Spectrum Analyzer, Logic Analyzer.
Other Skills and Emphasis: Embedded Systems, Microcontrollers, FPGA Development, Windows and Unix/Linux, Verilog and VHDL Behavioral and Structural Modeling, PCB/PWB Design, Schematic Entry and Physical Layout, SMD and Traditional Soldering, Rapid Prototyping, Digital Circuitry, Analog Signal Conditioning and Interfacing.

Organizational Affiliations:

Professional Organizations: IEEE, ACM - Academic Computing Machinery
CSULB Committees: Computer Engineering Curriculum Advisory Board,
Undergraduate Curriculum Committee, ABET Accreditation Committee
CSULB Faculty Advisor: EAT (Embedded Applications Technology), Maker's Society
Student Organizations – President of Micromouse - Autonomous maze solving robot team,
AESB (Associated Engineering Student Body) Representative, Member of EAT

Work Experience:

2014-Current California State University of Long Beach – Long Beach, CA
Full-Time Lecturer – Department of Computer Engineering and Computer Science
Teaching classes in Embedded Systems, Analog Circuit Design, Digital Circuit Design, FPGAs, Computer Engineering Senior Project Design and Engineering Project Management.

2012-2016 EBus Inc. - Downey, CA
Research, development, and production of electric bus transit technology.
Software Project Engineer - Embedded Software and Hardware Development, emphasizing in fuel cell power delivery systems.

2009-2012 Dice Electronics - Signal Hill, CA

2004-2007 Car Audio Integration; IPod, Sirius, BlueTooth, Flash Drives
Embedded Systems Engineer - Embedded Software Development, Hardware Design, PCB Design.

2007-2009 NDT Systems - Huntington Beach, CA - Portable Ultrasonic Non-Destructive Testing Unit Design
Contractor: Embedded Systems Engineer - Embedded Software Development, FPGA Prototyping.

2007-2008 Intelligent Energy - Long Beach, CA, Fuel Cell Control Systems Design and Industrial Control
Contractor: Embedded Systems Engineer – Embedded Software Development, Hardware Design.

2001-2003 Academic Computing Services - CSULB, Long Beach, CA - *Computer Lab Consultant*

1997-2001 ACE Hardware - *Clerk* and Martial Arts Training Center - Long Beach, CA - *Instructor*

Company Projects

EBus Inc.: A company specializing in the production of electric bus transit technology. From research and development to production, Ebus has pioneered large passenger buses to "old town" trolleys using a variety of electric platforms. These systems include all-electric, natural gas hybrid and fuel cell based technologies. My primary focus at this company has been a proprietary fuel cell boost power converter designed from the ground up to deliver current on demand. The converter performs this function using a TI TMS320 Digital Signal Microcontroller. Boost is achieved by a 3-phase interleaved DC/DC converter implemented with 6 IGBTs, each driven by PWM and controlled by PID. Multiples sensors and transducers are monitored to ensure fuel cell safety, efficiency and longevity. Other responsibilities include collaborative design, testing and troubleshooting of battery management systems.

Dice Electronics: A consumer electronics company which designed In-Car-Entertainment devices. All of our devices communicated on the car's proprietary internal bus, which had to be reverse engineered. I was responsible for the hardware, protocol, and communication of Toyota, Honda, and BMW. Our products integrated the iPod and iPhone as well as Sirius Satellite, flash drives, and Bluetooth enabled cell phones. Other non-product designs included data loggers, production QA and testing hardware/software.

NDT Systems: Design of portable ultrasonic flaw detection units for inspection of metals, composites and laminates. I collaborated in the design of the embedded software, as well as writing the end user software for data retrieval and analysis of the measurements. Another project included an FPGA implementation of a PCI Bridge that emulated the Atmel Atmega series GPIO for hardware testing and verification.

Intelligent Energy: Research and development of a 400 watt hydrogen fuel cell controller for the application of powering 110v AC devices. Also included in the design was a graphical display and input device used for monitoring different fuel cell performance metrics. Sensing and data acquisition included; temperature, differential pressure of the hydrogen tank, current and voltage. Other projects included valve controllers using both dc and stepper motors, as well as various solenoid valve controllers.

CSULB Academic Projects

FPGA based HDMI Machine Vision System: A graduate directed research project under a supervising professor. The project implemented an HDMI input and output device capable of image and video manipulation via machine vision techniques. Using a Spartan 6 FPGA board, the project performed real-time hardware gray-scaling of an HDMI video feed and software based convolution with Sobel operators for edge detection. A MicroBlaze soft-core processor under the Xilinx EDK suite was used to run the software and control the HDMI IP cores and framebuffer residing in DDR2 memory.

Superion: A semester long project to create a 64-bit RISC microprocessor design that aimed to combine the simplicity and reduced size of a RISC CPU, while allowing for a greater degree of instruction flexibility traditionally found in CISC machines. Noteworthy additions to the base design were a powerful barrel shifter and a radix-4 integer multiplier. This design was fully synthesized, verified with test benches and sample programs, and implemented on a Xilinx Spartan FPGA.

Micromouse: A team effort to create an autonomous maze-solving robot. The Micromouse robot used a NXP ARM7 MCU to provide system control. Movement was accomplished via two DC motors on a differential robotics platform with integrated magnetic quadrature encoders. Motor control was handled by two concurrent PID control loops and trapezoid generator implemented with LM629 precision motion controllers. Infrared sensors were used for both obstacle recognition and distance. Initial maze traversal was decided by a Depth First Search and later, solved by a Bellman Flood-Fill algorithm for the shortest path.