RESUME

GREG BENDER
Electro-Mechanical Systems Engineer
P.O. Box 7837
Stockton, CA 95267

EXPERTISE:
Innovations in New Product Development
High Speed, High Power Analog Circuitry
Instrumentation & Control Systems

ENGINEERING EXPERIENCE:
~Electro/Mechanical Packaging & Systems Engineering
~ASIC/FPGA/EPLD/SRAM & Programmable Arrays
~Opto-Electronic & Capacitive Signal Isolation Systems
~Process Instrumentation & Mixed-Signal Circuitry
~Servo Systems & Multi-Axis Robotic Controls
~High Speed Data & Fiber Optic Transmission
~EMR/EMI/ESD, Grounding & Shielding
~UL, IBM, CSA, VDE, TUV, S2-93, & CS
~High Voltage & High Current Circuitry
~Precision, Low Noise Analog Circuitry
~Data-Acquisition/ADC/DAC/PLL's
~Switching & Linear Power Supplies
~Automated Testing Fixtures
~Specialty Transducers
~RF Communications
~Embedded Systems
~Industrial Design

GENERAL SKILLS:
~2D/3D CAD Tools & Mech. Design
~Schematic Capture & Verification
~PCB Layout, Design & Testing
~Web Site Design & HTML
~Desktop Publishing
~Technical Writing
~Patent Searches
~Photography

FUTURE-SPARK R&D Consulting
Resource Firm for Start-Ups & New Tech.
http://www.future-spark.com

Email: greg@future-spark.com

My Electric Car Debut:
http://www.auricamotors.com

OVERALL OBJECTIVE:
I am a self-starting Electro-Mechanical R&D Systems Engineer with a background in Physics. I have over 25 years of combined experience in project management, electro-mechanical design, systems integration, sensors, circuit design & simulation, prototyping, precision measurements, analog & mixed-signal circuitry, ADC/DAC data acquisition, microprocessor controls, FPGA's, PLC's & Process Control Systems, Servo Motor Systems, 2D & 3D CAD, PCB-Schematic Design & Layout, RF, Hi-Voltage, Hi-Current, SMPS & DC-DC converters, and, as well as RF/EMI/EMC measurement techniques, standards compliance, and environmental stress testing. My analytical skills are excellent.

I also have special expertise in Acoustics, Noise, & Vibration Control; Motor Drives; as well as Thermal Design for high powered electronics. With my broad range of product experience across several industries, I can offer technical insights that would be outside the experience of others focused in their field. This can be very useful in cross-functional teams. As a Physicist, Scientist, and Engineer, I work best in New Product Development, often deriving cost effective breakthroughs to difficult production problems. This requires a fast learning curve, parallel problem solving, extensive industry experience, and the ability to work effectively at all levels within the company. I am especially focused on Alternative Energy Systems, Wind Power, and Electric Vehicles.

WORK HISTORY:
Future-Spark R&D Consulting, Stockton, CA -*R&D Consulting Engineer* Jan. '13 – present
-Invented, developed, and engineered a powerful, long distance Shark Deterrent System that fits inside a Surfboard.
-Named Fire-Bolt^{tm}, this High Voltage System can also be implemented along shorelines and piers with solar power.

-Invented, developed, and refined a unique AC Electrolysis Process for extracting metals into a liquid solution.
-By using certain metals, powerful antimicrobial remedies can easily be made to cure MRSA and other Superbugs.
-These topical antimicrobial solutions are made in a countertop Micro-Station, the main product of MetalliCure^{tm}.

Aurica Motors, LLC, Santa Clara, CA *-Founder, R&D Manager* Jan. '10 – Sept. '12
-Full design and engineering of long-range electric vehicles utilizing my patented motor drive, PTO No. 8,928,290.
-Designed a comprehensive platform for supporting the Electric Car Industry; including advanced safety crash systems, extended-range motor drive systems, dynamic steering and braking hydraulics, onboard charging systems, as well as several battery swapping configurations.
-The Aurica Motors Debut was responsible for raising awareness about making electric cars in CA and thus restarted the NUMMI Plant in Fremont, CA. But at the time, Aurica Motors was summarily dismissed and Tesla Motors was forced by Presidential Decree into making its electric cars at the NUMMI Plant, under Toyota's renewed ownership, just 2 months after their infamous pull-out. Currently 80% of that facility still remains dormant.

BAE Systems, Santa Clara, CA *-Senior EE* April '07 – Oct. '09
-Engineering Lead for Systems Integration and Testing of MRLS Sub-Systems such as Fire Detection Sensors, Oil Pressure, and Cooling Systems. Electro-Mechanical Parts and PCB Designs were built to Military Specifications.

Aurica Labs, Nice, CA *-Owner, Project Manager* Jan. '02 - March '07
-Project Development for several Alternative Energy Systems, including Electric Vehicles and Solar Panel Cooling, all geared toward Renewable Energy and Environmental Sustainability.
-Relocated to the Bay Area in 2005 to pursue latest inventions and related business plans.

Verticom, Santa Rosa, CA *-Consulting Acoustics Engineer* May '01 - August '01
-Designed a series of Acoustical & Mechanical Vibration Tests to reduce micro-phonic effects in 6-12GHz YIG Mixers used in Point-to-Point Microwave Transmission Towers and Wireless Communications.

MyTurn/NewDeal, Inc., Alameda, CA *-Hardware Engineer* Aug. 2K - April '01
-System Integration & Cost Reduction of power supply and modem circuits in embedded '486 Single Board Computers that met International Safety Regulations and ran the compact, efficient Geos-OS.

Intevac, Santa Clara, CA *-Consulting Systems Engineer* Jan. '98 - March '99
-Engineered Complete Wiring and Cable Harness for connecting the PLD Controller to all sensors, pumps, & actuators in a Glass Etch & CVD Process Machine used in making large Flat Panel Displays, 6x8 ft.
-Engineered the Timing Circuitry and the PCB for a 12 Ch. Auto-Sequencing, Turbo-Pump Interlock System.

Golden Media, Marin, CA *-PCB Design Engineer* Sept. '96 - Nov. '97
-Generated the Layout of Printed Circuit Boards for proprietary Audio, Data, and Video Multiplexing Systems.

Lam Research, Inc., Fremont, CA *-Project Lead, Consulting Systems Engineer* June '95 - Aug. '96
-Project Lead in developing a Universal Safety Interlock System for Semiconductor Etch Machinery that met full compliance with UL, IBM, CSA, VDE, TUV, S2-93, & CS International Safety Commissions.

Toshiba, MRI Div., So. S.F., CA *-Consulting Mechanical Engineer* Jan. '94 - Nov. '94
-Developed an Acoustic Noise and Vibration Kit for use in Medical MRI Machines that cut noise by 27dB.
-Worked with Composite Structures used in a Patient Bed & Track System that supports 300lbs on a 12ft span.

CADXCEL, Inc., Santa Clara, CA *-Consulting Design Engineer* May '92 - Dec. '92
-Project Lead for complete New Product Design of a Silent Automobile Security System with 300Mhz RF Remote Key Lock; from safety issues, to circuit design, through several prototypes, and final sign-off.

Stellar Systems, Inc., Santa Clara, CA *-Senior Development Engineer* March '91 - May '92
-Re-engineered Outdoor Perimeter Security Systems using 40Mhz Buried Coax Cables and High Voltage Fences, where interference with the RF field pattern detects an intruder's the mass and velocity.

Pulse Sciences, Inc., Oakland, CA -*Consulting R&D Design Engineer* Jan. '90 - Oct. '90
-Engineered Instrumentation & Auxiliary Control Consoles for 100kV Systems. July '87 - March '88
-High Voltage Pulsed Power Equipment built for the SDI, Nuclear, & Particle Acceleration Research Programs.
-Involved in specifying and repairing Custom High Voltage Switching Power Supplies for Pulsed Power.

Hewlett Packard, AMSO, Sunnyvale, CA -*Analog Electronic Engineer* Dec. '88 - Dec. '89
-Specified, designed, and verified several Automotive Engine Diagnostic Probes for arc & dwell, temperature, pressure, and flow; all built to the highest quality with H.P.'s exacting environmental standards.

Worlds of Wonder, Fremont, CA -*Contract Electronic Engineer* April '86 - Oct. '86
-Designed a Low Cost, Low Noise, 3-axis Servo Drive Circuit for One Million Lot Quantities of Teddy Ruxpin.

Varian/Extrion, Gloucester, MA -*R&D Prototype Circuits Designer* July '84 - Dec. '85
-Developed and implemented a 6 Channel, Fiber Optic Isolated, DC Supply Controller for controlling various Extraction Power Supplies used in the first Production Prototype of a 1.1MeV, High Energy Ion Implanter.
-Designed and built a High Voltage, Isolated DC Servo Control Loop for position control using Fiber Optics.
-Invented, designed, and built the electronic controls for the world's first Dual Langmuir Plasma Probe.

EDUCATION:

Northeastern University, Boston, MA Winter '83 – Spring '84
-Pursued a Bachelor of Science in Physics, with Special Concentration in Electro-Acoustics and Amplifier Design. For my Senior Year Project I decided to apply for a patent on Current Feedback Amplifiers instead.

Colorado State University, Fort Collins, CO Sept. '80 - May '82
-Physics- Entered Sophomore Standing with Advanced Placement Credits in English, Calculus, & Physics.

RELATED EXPERIENCE:

-Invented an 8 Decade, Voltage Controlled Oscillator and Bi-Quad Filter; useful in Wide Tracking Range PLL's, as well as Self-Tuning PID Controllers, Automated Servos, and Real-Time Adaptive Robotic Systems.

-Received Patent No. 5,103,188 on April 7th, 1992 for new approaches in Current Feedback Amplifier Technology, which significantly increases speed and stability in solid-state IC amplifiers. This analog block is now used in Audio IC's, ADC's, DAC's, Precision PLL's, Sat-Comm, Power Amplifiers, RF, HD Video, and ADSL Line Drivers. After 25 years, this patented circuit exists in every consumer electronic device available today. Despite its rough legal history, this latent patent had settled 27 infringement claims in a row for damages across the Semiconductor Industry.

-Engineered new concepts in Human Powered Vehicles, intended for Human Powered Speed Records on Land and in Air; as well as a long distance touring using painted solar surfaces & re-generative motor drives.

-Received Patent No. 8,928,290 on Jan. 6th, 2015 for new approaches in SMPS Motor Drive Technology, which cuts the power drain from the battery in half, thus doubling the practical driving range for electric cars.

-Designed and developed several types of High Powered Wind Generators. By using specialized Sails, Wind Turbines half the size & cost can generate over nine times the power. Two unique Wind Systems take advantage of Man-Made Wind, generating over 100 Megawatts per site. The Tri-Generation Wind System floats offshore on a Wave Motion Platform and is designed to generate peak-power during severe storms and hurricanes.

-Pioneering Rare-Earth Recovery Systems that will convert E-Wastes and Toxic Landfills into lucrative stockpiles of the common Elements and Isotopes used in today's Semiconductor Manufacturing.