

Stephen J. Wenner

Tezla LLC

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Electrical Engineer with 30 years of extensive analog, digital, power and RF hardware design experience, looking to catapult entrepreneurial customer ideas into cost effective, reliable, manufacturable products that will shape our world. For more information please visit Tezla LLC.

Job Experience:

Tezla LLC, State College, PA

Owner / Engineer

Mar 18 – Current

- Developed and designed complete electronic wireless LoRA network, including firmware for high power LED application.
- Designed high gain amplifier conditioning circuit and power for extreme low level signal monitoring (2uA).
- Designed CAN bus system to relay sensory data from patented pneumatic trim tab system for in-flight adjustments on Army Blackhawk helicopters.
- Designed Wireless HUB and sensors for acceleration monitoring on industrial robots for major industrial wireless sensor company.
- Designed single board accel / wireless solution for major industrial sensor company.
- Designed intelligent battery charger for Li-Ion batteries.

The Pennsylvania State University, Applied Research Laboratory, State College, PA

Engineering Designer

Apr 18 – Dec 18

- Altium PCB Layouts / Design for Government Programs
- Altium Library maintaining

KCF Technologies, State College, PA

Minority Owner/Manager of Electrical / Firmware Engineering

Apr 09 – Jan 18

- Creator of DART™, a wireless network protocol for transferring large blocks of data at extremely low power. Product solutions have field battery life greater than 8 years (<https://www.kcftech.com/smartdiagnostics/>)
- Responsible for product up-rating with high temperature solution of 125C.
- Extensive work on various energy harvesting techniques including solar, thermal, piezo and electromagnetic for low power wireless sensor applications.
- Responsible for all hardware development for KCF including rigid, flex-rigid designs and LGA designs.
- Managed and implemented embedded development on MSP430 platforms

The Pennsylvania State University, State College, PA

Sr. Research Associate

May 08 – Apr 09

- FPGA / Matlab development:
 - Responsible for simulation and development of upsampling and downsampling of video frames in real time using bilinear algorithms
- Software:
 - Development of PIC microcontroller code for PIC16F877 applications
 - Development of Data Viewer in Labview for Biology Department

RTD Embedded Technologies, State College, PA

Sr. Analog Electrical Engineer

Apr 04 – Mar 08

- FPGA development:
 - Bus interfaces to PLX PCI Bridge and ISA bus
 - Complex Scanning and data manipulation for analog peripheral devices
 - Communication links SPI, I2C interfaces, parallel busses
 - Responsible for all FPGA/CPLD VHDL coding on analog boards
- Designs:
 - SmartCal Data Module line which uses a TMS2812 DSP to autonomously calibrate and adjust offset and gain errors (http://www.rtd.com/PC104/DM/analog_IO/sdm7540.htm)

- Dual Ethernet Fiber and RJ45 boards using Intel's 82551
- Responsible for the complete redesign of the analog front end for RTD's future analog boards that encompasses using a SPARTAN III for dynamic scaling
- Constant technology improvement on existing 16 bit, 12 bit A/D and D/A boards
- All analog module synchronous switching supply designs with some boards containing spread spectrum

Paradise Datacom, Boalsburg, PA

Sr. Electrical Engineer

Aug 03 – Mar 04

- Responsible for VSAT Terminal System level design; included Block Up Converters, Modems, LNBS, Power Sources, Redundant Controllers, Modems as well as product field integration.

Self Employed

Jun 03 – Sept 03

- Test Procedure Development on the Cruise Missile Acceptance and Qualification Test plan

Preschutti & Associates, State College, PA

Sr. Member of the Technical Staff

Aug 01 – Jun 03

- FPGA development:
 - Message parser with FIFO interfaces
 - Various serial interfaces (UARTs, D/As, A/Ds, etc)
 - Communication and data transfer to PowerPC
- Hardware development:
 - Mixed signal 64-channel transducer core module for Cruise Missiles
 - Infrared to RF link using coherent AM modulation techniques for transmitter/receiver application
 - Digital hardware on control circuitry for cellular/PCS Angle of Arrival System
- Hardware testing of 18-layer high bandwidth audio storage data system with 1000 channel capability
- Created Acceptance and Qualification Test Plans for Destructive Radio Frequency Units, PCM Encoders and Destruct Initiation Units for Trident and Cruise Missile programs

Videon-Central, State College, PA

Sr. Electrical Engineer

Feb 00 – Jun 01

- Large scale video FPGA developments:
 - Communication and data transfer interfaces to: MIPS, Motorola Coldfire and PowerPC, IVAC MPEG encoders, LSI MPEG decoders, Micronas MP3 decoders, etc
 - Data transfers through FIFOs with arbitration
 - Master I²C controller
 - Parallel / serial and serial / parallel conversions of audio and video data formats at various bit rates
- Responsible for hardware designs:
 - MPEG II encoder with 100Mbit Ethernet interface for personal jets
 - MPEG II encoder / decoder with BT656 front end for gathering highway information
 - DVB project with MPEG II transport streams and picture in picture capability

Krautkramer Branson, Lewistown, PA

Sr. Electrical Engineer

Mar 98 – Feb 00

- Responsible for all aspects of hardware development for Krautkramer Branson's first PCI, ultrasonic phased array

Wintron Inc., Bellefonte, PA

Lead Research Engineer

Jun 95 – Mar 98

- Responsible for deflection yokes and high voltage transformer development for high resolution monochrome CRT applications

The Pennsylvania State University, Applied Research Laboratory, State College, PA

MSEE Graduate Student

Aug 94 – Jul 95

NUWC, Norfolk, VA

ASW Systems Engineer

Jan 91 – Jul 94

- System level troubleshooting of Surface Ship Torpedo Defense (SSTD) systems
- Managed Torpedo Defense Installation teams at various worldwide sites

Publications / Patents

U.S. Patent #8793081 **Internal structural monitoring system** issued July 2014
U.S. Patent #9106160 **Monolithic energy harvesting system, apparatus and method** issued August 2015
U.S. Patent #9271170 **Channel adaptation in sensor networks** issued February 2016
U.S. Patent #9322692 **Flow sensor including a tube extending from a housing and static and stagnation ...** issued April 2016
U.S. Patent #9419331 **Flexible antenna with weatherproof protection system and method of weather ...** issued September 2016
COTS: The Journal of Military Electronics and Computing **Drifts and Calibration: Fine Tuning Data Acq** issued November 2005
MSEE Thesis: **High Frequency Propagation Model Prediction, Analysis and Validation as Correlated to...** issued August 1995

Education:

MSEE Aug 94 – Jul 95	Pennsylvania State University
BSEE Aug 86 – Dec 90	Pennsylvania State University
ASET Aug 84 – May 86	Williamsport Area Community College