

# MATTHEW R. VENTIMIGLIA, BSEE

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## SUMMARY

Proven electrical and mechanical engineering professional with over 14 years of experience in a variety of engineering disciplines including environmental sensors, medical devices, system automation, data management/analysis, and calibration. I have consistently demonstrated a proficiency in the design and manufacturing of PCBs, power and communications systems, and calibration/validation fixtures. Expert in program management and supervision; my exceptional communications skills, both verbal and written, support my engineering background and allow me to work well with customers, co-workers, and suppliers on quality, engineering, manufacturing, and test issues.

## EXPERIENCE

### **National Ecological Observatory Network (NEON)**

#### ***Electro-Mechanical Engineer***

**Boulder, CO**

**Nov 2010 – Dec 2014**

- Designed, programmed, and fabricated multiple calibration fixtures for a national network of ecological observatories, working with NREL, NIST, NASA, NOAA, and other agencies
- Managed the design, architecture, and permitting process for NEON's outdoor calibration facility, then executed the construction while directing and interfacing with the numerous contractors involved
- Supervised outdoor calibration facility operations, leading a team calibrating/validating over 30 types of environmental sensors
- Managed aerosol optical density (AOD) database & sun-photometer sensor monitoring for NASA/NEON collaboration project using NASA's in-house software and databases
- Performed data analysis and QA/QC on calibration data using Excel, Campbell Scientific, and EdiRe software
- Created LabVIEW/CVI programs and troubleshooting software for calibration fixture operations including automated processes and GUIs
- Conceived, designed, and implemented custom fixtures, power boxes, cabling, and mounting structures
- Generated uniform documentation of all fixture designs including user manuals, drawings, schematics, and BOMS using standardized templates
- Designed, laid out, and assembled multilayer PCBs used in enclosures for NEMA-4X data acquisition system
- Programmed Campbell Scientific and Opto-22 dataloggers for various analog and digital data acquisition needs for indoor/outdoor calibration fixtures
- Performed calibration and validation of temperature, humidity, radiation, wind, and other ecological sensors

### **Kestrel Labs, Inc.**

#### ***Electrical Engineer***

**Boulder, CO**

**Aug 2007 – Sep 2010**

- Designed and assembled multilayer PCB's using Eagle, Orcad, PADS, & BOMs
- Generated documentation for the quality system, and ensured all documents conformed to ISO and FDA requirements for medical devices
- Qualified and calibrated numerous medical devices on specially designed test equipment in a controlled laboratory environment
- Specified critical components for electrical circuits and performed application testing and implementation
- Performed optical component analysis using optical power meters, laser drivers, and temp controllers
- Created hermetic packaging for optical component housing and verified performance using HALT testing
- Worked with vendors to produce a specialty hybrid cable based on required electrical/mechanical specifications
- Designed, assembled, & installed automated water supply system for environmental chamber

**Fluid Power Engineering Company, Inc.**  
**Sales Engineer, Product Specialist**

**Chicago, IL**  
**Aug 2006 – Aug 2007**

- Designed pneumatic-electrical manufacturing systems as well as fully-automated processes
- Performed cost analysis for engineering and maintenance schedules regarding ROI and LCO
- Adhered to RoHS, FDA, OSHA, NEMA, & ISO regulations per factory requirements
- Managed 60+ accounts, ensuring proper care taken to satisfy each company's individual requirements
- Composed drawings, proposals, and other types of documentation based on customer needs
- Participated in factory training schools for many various OEM's

**Mac Valves, Inc.**  
**Product Development**

**Wixom, MI**  
**Oct 2001 – Oct 2005**

- Designed/fabricated a solenoid-coil test fixture using Protel and CADKEY software
- Implemented coil qualification process resulting in over \$30K in annual savings (Thesis Project)
- Assembled valves and assemblies to exact specifications, per designated assembly requirements
- Tested the specs & performance of current and prototype valves and assemblies
- Organized, analyzed, and chronicled life-test data for R&D purposes

**Vent Heating and Cooling**  
**HVAC Technician**

**Ann Arbor, MI**  
**Mar 1997 – Aug 2006**

- Assembled and installed full HVAC systems (electrical, gas pipe, water supply, vent piping, etc.)
- Constructed custom-fit ductwork and installed complete ventilation systems

## **EDUCATION**

**Kettering University (formerly GMI)**  
**Bachelors of Science in Electrical Engineering**  
-87% WAG (3.3 GPA), Deans List 2005

**Flint, MI**  
**Jul 2001 – Oct 2005**

## **SPECIAL SKILLS**

- EaglePCB, Orcad, Altium/Protel, PSPICE, AutoCAD, CADKEY, Visio, Matlab, LabVIEW/CVI, MS Office
- Extensive experience w/ all general lab instruments (solder irons, o-scopes, meters, power supplies, etc.)
- Proficient with all hand & power tools (plumbing, woodworking, mechanical, electrical, TIG welding, etc.)
- Machine Shop Technologies Course Certified (Colorado University Physics Trades Teaching Lab)
- LabVIEW Core I & Core II Training Certifications (National Instruments)
- Certified Tower Climber and Rescuer (SafetyLMS Tower Climbing)
- Campbell Scientific Loggernet Training Course and CRBasic programming (Campbell Scientific, Inc.)
- CPR, AED, First Aid, and Bloodborne Pathogens Certifications (Medic First Aid International)
- Highly proficient in all forms of communication, both written and verbal