

MARTIN BOYD

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ELECTRONIC ENGINEER

Prototype to Production engineer recognized for identifying and averting product crisis and for creating opportunities to increase engineering productivity.

Experienced team-based product designer and product support / current product engineer. Proficient in embedded systems design and programming, hardware integration and design for electromagnetic compliance. Familiar with serial communications design and audio / video / RF theory. Accomplished in research and technical writing and in procedure and process documentation.

- **Embedded firmware & design**
- **Fail-safe hardware design**
- **Manufacturing / Production support**
- **Schematic capture**
- **Microcontroller firmware**
- **Failure analysis**
- **Research & Technical Writing**
- **Acceptance Testing**
- **Hardware Integration**
- **Communications systems**
- **Technical Documentation**
- **Product testing & Certification**

PROFESSIONAL EXPERIENCE

MDBoyd.com

Fresno California

2015-2018

Electronic Engineer

2015-2018

- Project: Microchip PIC based Aquaponics water monitoring system to monitor and log flow rate, turbidity, level, and pH.

CVAAS – AN EDUCATIONAL / SERVICE NONPROFIT ORGANIZATION

President / Chairperson

2016-2018

- Incorporated CVAAS as an educational nonprofit organization.
- Increased annual budget with membership sales and donations from \$500 per year to \$5,000 per year.
- Organizer & director: Annual funds raising event with event speakers, advertising, PR and 150-person guest list.
- Created and maintain the Wordpress based organization website including sales and pay gateways.
- Organized public relations and advertising through traditional and social media networks, press releases, and interviews.

PELCO BY SCHNEIDER ELECTRIC

Fresno / Clovis California

2007 - 2014

Electronic Engineer 2

2007-2014

- Current product engineering team – analyzed product problems, created solutions and subjected to EMC and reliability testing to create high-confidence updates and corrections implemented by engineering change orders and Production procedures.
- Published two white papers, changing the way Schneider Electric treats the Pelco Division in recognition of the necessity of decreased product development cycles in response to uncertainty in high tech markets. Author, editor, and co-researcher.
 - “Impact of Multicore Processors on the Video Line of Business”, which demonstrated the necessity of heterogeneous multicore processors in digital video surveillance.
 - “The Impact of Advancing Processing Power on the Capabilities of the Surveillance Industry”, which identified cell phone technology as the new driver of digital video surveillance.
- Created new product line by integrating ODM fiber optics into existing camera products. Specified required ODM changes, created and evaluated prototypes, designed integrated product to meet EMC and reliability compliance.
- Researched measurement methods to reduce hardware costs for intelligent sensor included in many core product lines. Updated existing hardware and implemented measurement technique in firmware, with included hooks for Production inspection.
- Supported customer contracts by analyzing and documenting product failures. Implemented failure analysis techniques including optical and x-ray microscope, and using mechanical, oscilloscope, and data analyzer probing together with CAD navigation.

PELCO

Fresno / Clovis California

1996 - 2007

Electronic Engineer 1

1996 - 2007

- Project manager and designer for new product that provided failsafe recording in massive scale analog video monitoring systems.
- Added video and alarm input and pan/tilt/zoom control to existing Access Control system by designing a mezzanine expansion board. Wrote motion control software driver for expansion board microcontroller.
- Initiated a current product maintenance program. Did product triage and created changes, with functional and EMC testing.
 - Documented product backlog to successfully justify the creation of a Sustaining Engineering team. (PLM)
- Improved hot-swappable power supply product line by designing and integrating a fail-safe controller board.
- Published the executive proposal, “Necessity of Manufacturing Change”, explaining the legal necessity for a major change in manufacturing processes. Executive staff accepted and acted on this proposal, saving 40 million dollars of yearly European sales.
- Published white paper, “Lead Free Manufacturing”, which explained European product directives, and created a detailed product

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roadmap to meet these directives. Executive staff accepted and implemented this roadmap.

- Identified a temporary exemption to EU product directives. Recommended the legal process to meet this exemption. Executive staff followed recommendation which allowed continued sales to the European Union during product transition period.
- Created new engineering design processes, modified the part management system, and backed changes for Production and Technical Publications. Collaborated across departments to create "Lead-Free" versions of existing products.
- Designed, built and programmed equipment that time stamped individual video fields in streaming analog video. This was widely used in product research and development to test and troubleshoot video in digital and analog recording environments.
- Researched hardware patents in support of patent disputes, created refutation documents to support Pelco patents.
- Created test fixtures, test procedures, and Production training for Engineering introduction of new products to the factory.

MILITARY EXPERIENCE

United States Air Force

Pacific Air Forces and Air Combat Command

Staff Sergeant (E5) AFSC 2E178 Ground Radio Communications Craftsman

- Awarded Air Force Commendation medal for emergency rebuilding of Air Traffic Control (ATC) electronics destroyed by lightning.
- Maintained radio and control systems for ATC, Approach Control, Forward Air Control, and fiber optic, facsimile, & audio systems
- Established, assembled, and managed an all-volunteer Military Auxiliary Radio System (MARS) station.

TOOLS & SKILLS

Platforms	Microsoft Windows, Ubuntu Linux, Mozilla Firefox, Google Chrome, Android, Raspbian (Raspberry Pi), Oracle VM Virtualbox		
Office	MS Office suite: Word, Excel, PowerPoint, Access, Outlook, Visio PDF: Adobe Reader, Foxit PDF reader, Adobe Acrobat, PDF printer Linux: Open Office, LibreOffice, ProjectLibre		
Project Mgmt	JIRA, Confluence, Agilefant, Windchill, MS Project, Mindjet mindmapping		
Publishing	Scrivener, Scribus, Scribfire, MS Publisher, Wordpress,		
Graphics	GIMP, Inkscape, Visio, Cerious Thumbsplus, Autodesk Sketchbook, Wacom, Celsys Clip Studio Paint		
Audio & Video	Cubase AI, Cubasis LE, Audacity, Adobe Audition, VLC		
Applications	EDA	Altium, Protel, KiCAD	Version control: GIT, Subversion
	IDE	Eclipse, Slickedit, MPLAB, Arduino, Raspbian, GCC	CAD: ViaCAD, Sketchup, LibreCAD
	Simulation	LTSpice IV, Mathematica	
Languages	Microchip RISC, ANSI C, C++		
Tools:	Oscilloscope, voltmeter, spectrum analyzer, frequency synthesizer, datalogger, multichannel DSO, X-ray inspection, CAD-based debugging, JTAG, ICE, ICD		
Audio tools:	Steinberg UR44 6x4 Audio Interface, Alesis MultiMix 8 USB mixer, Zoom H4 portable audio recorder		
Standards:	RS-232, RS-422, RS-485, IEEE-1284, I ² C, SPI, USB, SCSI, Parallel/Serial ATA, SMB, PCI-X, JTAG IEEE 1149.1, UART/USART, IEEE 802 (some physical layers), IPC-A-610		

EDUCATION

- 160 college credits toward a Bachelor Degree in Electronics Engineering. University of California, Fresno
- Ground Radio Communications Specialist certification. (Technician, 992 classroom hours)
- Advanced Digital Techniques certification. (Technician, 168 classroom hours)
- Air Force Leadership, Management, and Quality Awareness certifications. (Management, 238 classroom hours)

ACTIVITIES & INVOLVEMENT

- Amateur radio operator: General class, callsign KD6TXV
- Maker Culture: fascinated by the integration of electronic control systems into permaculture and aquaponics.
- Professional organizations: IEEE & IEEE Communications Society; ARRL – national association for amateur radio