ROSS MERNYK

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SUMMARY

20+ years experience designing mission-critical electronic systems and software, 16 Patents, BSEE from MIT, Chief Engineer, Expert Witness in ITC case.

I have extensive experience in:

- Real-time programming (firmware, software)
- Microcontroller design and interface (hardware)
- Self-Testing device design (firmware, hardware)
- Working in high-volume, low-volume, and special projects environments
- Powerline arcing AFCI and ground-fault GFCI research and detection algorithms
- Device communications (protocol design, telemetry, packet telemetry, WiFi, Bluetooth)
- Microprocessor design/program: Arm Cortex, STM32, Atmel AVR, Padauk, 68HC11, 6805, PIC16, PIC18, Z80, ST72
- Wrote and released Comport Commander, empowering technicians to create complicated device testing using simple scripting language
- High-level programming: Embedded C, Borland C, Microsoft Fortran
- Data collection, telemetry, logging, processing, and plotting
- Digital circuit design and interface (CMOS, TTL)
- X-10 and CEBus automation protocols

I have additional experience in:

- Sensor and transducer interface circuitry
- Patent writing, interpretation, prior art searches
- GFCI Expert Witness at International Trade Commission
- Oceanographic and environmental formulae and algorithms
- Representing companies at conferences and in customer contacts
- High-level / OOP programming: Java, C++, Basic, Algol, PL/I, Lisp
- · Helping management and customers define products and user interfaces
- Direct international customer technical support, both onsite and by zoom
- Microprocessor programming: 8051, 8086, DOS/BIOS, 6502, Arduino
- Ergonomic user interfaces (hardware and software)
- Kermit, Xmodem, and proprietary transfer protocols

EXPERIENCE

BIOLITE ENERGY, INC.

1/19 – 3/24, Senior Firmware Engineer

- Designed complete stand-alone multi-tasking firmware for headlamps, lanterns, solar power collectors, and battery power distribution nodes.
- Extensive use of Embedded C on Arm Cortex processors.
- Devices employed active thermal management, PWM charging, LED PWM drive, MPPT solar power collection, battery power minimization.

Brooklyn, NY

- Overcame Arm supply chain issues using Padauk processors and writing in assembler.
- Supported mass production development, writing firmware with changing requirements and custom support for test engineers and ID team.
- Proposed and coded many new product features, enthusiastically approved by UI and ID teams.

MECHOSYSTEMS. INC.

8/11 – 7/16, Senior Electronics Engineer

- Designed electronics, embedded firmware, and communications protocols, for networked automated window shades and control systems.
- Designed entire hardware and pic18 assembly firmware for multimodal interface node, with • 5 soft and 2 hard uarts, 8 dry contact interfaces, multiple comm protocols, pipelined binary searched downloaded command maps interpreted real-time, code update over the network, infra-red receiver, 95 step onboard self-test, and full configurability over network.
- Wrote real-time embedded pic18 assembly code program which translates between 5 communication protocols in a router. Cooked entire multitasking kernel, with interrupt driven bit interleaved soft uarts, and 20+ fsm state machines.

MEI & MARK LLP

1/11 - 3/11, Patent Researcher

• Performed prior-art searches on GFCI Technology related patents in a case before the International Trade Commission.

PERKINS COIE LLP

1/08 – 6/08, Expert Witness

- Expert Witness on GFCI Technology in complex case at International Trade Commission.
- Pass & Seymour sued 15 respondents, including Trimone whom I represented.
- 63 claims in 4 patents asserted against Trimone.
- Produced appx 300 pages of expert reports and court presentations.
- ITC ruled non-infringement of all claims asserted against Trimone.

LEVITON MFG. CO.

9/97 – 6/07, Chief Engineer

- Performed basic research and product development in electronics and firmware for powerline arcing and ground-fault detection equipment.
- Contributed considerable intellectual property and patents: Powerline arc detection AFCI, zero-cross alignment, X-10 communications, GFCI detection & self-test, binding algorithms and user interfaces.
- Designed hardware & firmware for device which communicates X-10 over powerline and RS-485 over twisted pair, while executing a finite state machine and synchronizing to a large network.
- Designed hardware & firmware for adaptive control of proprietary devices. Product communicates with network via LONworks Neuron chip, and performs timing sensitive local control by reading switches and sensors.

Washington, DC

Washington, DC

Queens, NY

Queens. NY

ENDECO, INC.

6/88 – 8/97, Consulting Engineer

- Developed hardware and firmware for a deployed acoustic current meter.
- Designed wireless RF packet telemetry field station, for collection of sensor data via analog interfaces, acoustic telemetry, SDI-12 bus, and customizable RS-232.
- Helped in product definition, and then implemented, an integrated control program for user-friendly real-time multi-site monitoring via wireless telemetry, including setup, operation, live plots, alerts, automated remote control, file plots, file transfer.
- Programmed OEM handheld terminal for menu-driven client server application, including sensor data logging, calibration, file transfer, user data entry.

YSI, INC.

Yellow Springs, OH

Cambridge, MA

5/89 - 8/97, Consulting Engineer

- Working closely in a small engineering team, helped define an intuitive user interface for YSI's dissolved oxygen meter, and for the EPA BOD test. Then wrote a program to operate the meter by PC, and guide computer-illiterate users through the EPA test.
- Developed integrated program for processing, plotting, and transfer of data files. Interfacing with several groups within YSI, I was able to satisfy demands on functionality, aesthetics, performance, and ease of use.
- Created a complete network protocol, YSInet, for real-time, multi-site, multi-medium communications, including data collection, device control, and education.

EDUCATION

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Course work completed May 1985 BSEE with Thesis completed December 1987

- Thesis title: An Implementation of a Sailboat Autopilot.
- Excelled in all design courses and Thesis.
- Special courses taken: Digital Design Lab, Mechanical Design Lab, Thermodynamics, Computation Structures, Computer Systems Design, Exploratory Data Analysis.
- Studied finite state machines, microprocessor systems, TTL digital hardware, team projects, mechanical designs, machine shop, generating raster scan video.
- Humanities concentration in psychology.

PATENTS & CREDITS

- **16 Patents** in Arc fault detection, Ground fault detection, Circuit interruption, Self-test, and Networking
- Listed in Who's Who in Science and Engineering, and Who's Who in America, 2000 through present editions
- **Presented** "The Endeco Data-Watch Adaptive Packet Telemetry System," Ross Mernyk, *Oceans 87*, September 29, 1987, Halifax, NS.

BACKGROUND

Born and raised in New York City. Educated at Saint Ann's School in Brooklyn NY. Passionate about improv, contra dancing, photography, brainstorming, and bacon.