

Zackery Sobin

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Portfolio: Zacktronics.com

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Summary: Electrical Engineer, with experience as a Naval-trained reactor operator and a strong software background.

Driven by technical curiosity, I spent a few years developing an IP-based remote-control protocol and physics simulator from the ground up. Other hobbies have included design of printed circuit boards and automotive maintenance where I bridge the gap between digital logic and mechanical reality. I have a deep fascination with physics. Recently, I've integrated AI-augmented workflows to accelerate my velocity. I combine this modern agility with the rigorous precision of my Navy nuclear background to deliver high-impact, reliable solutions that exceed organizational goals.

Education:

2007 – 2011	North Carolina State University BS Electrical Engineering degree
2004	7-Wk Navy E.T.M.S School (Nuclear-grade soldering/crimping/lock-wire training)
2000 - 2002	Navy Electronics' Technician School, Navy Nuclear Power school,

Work Experience: (May 2011-Present)
Firmware, Senior Design Engineer
Design software and hardware for embedded Linux systems. I've used Python, Javascript, NodeRed, Node.js, Redis, C/C++, Yocto, Uboot, Python, RestAPI, FastAPI and other software's. I have researched filesystem types and mounting options, for performance and longevity optimization of flash memory in an embedded environment. I've worked with systemd service files, Docker containers.

In the past, I used SQL and have written several projects where SQL code is automatically and dynamically generated as needed to run customer queries.

I've programmed PLC controllers and have developed various solutions for diverse industries including water, wastewater, Oil and Gas, and mining. I understand various types of customer processes. I've made control strategies for powerful, fast, machines that use Hydraulic systems.

I have worked with VFD's and understand their design, selection, operation, and ways to mitigate electrical noise and its effect on instrumentation. I understand many types of instrumentation technologies and the reasons to select one type of sensor over another for an application and have written software to use signal processing techniques including digital Fourier transforms.

I have helped develop several customer projects including Old Bridge NJ's wastewater SCADA , Los Angeles's Pitchess Detention Center fresh-water SCADA and Total Power's FMx Fuel Monitoring Solution.

(Summer 2009)
Diosynth Biotechnology – Engineering Intern

Worked with contract electricians to study the load-centers and distribution panels of a relatively large pharmaceutical plant. I added this information to a MS Access database program, that I completed. Made extensive use of VB forms and SQL queries to create user-friendly search features based on room number, load type and other other criteria. I also created a feature to easily print updated panel-inserts, ensuring standardized information was available at every distribution panel, thereby increasing equipment up-time and improving the availability of information during possible casualty operations.

In the wake of a catastrophic failure of the plant's emergency generator system, I led the repair efforts by finding the emergency generator's GE Fanuc automation code on floppy disks in the engineering library. I studied the code to produce wiring diagram that electricians followed to replace the wiring. I improved the code and reprogrammed the PLC with a watchdog signal connected to the plant's site-wide SCADA to allow operators to remotely confirm operation of the emergency generator PLC program to assure that an automatic startup and transfer may be

expected in the event of a power loss.
(Scanned copy of letter of recommendation at <http://zacktronics.com/letter1.html>)

(Fall 2008)

Appealing Products

Was the primary technical designer and programmer of an experimental ionization gas detector; Completed two revisions of the system design. Gained experience with PCB design and assembly. Learned practical considerations about the design of highly sensitive instrumentation as well as good practices for cleanliness and assembly of such systems. Communicated with vendors about deadlines and inventory.

(2000-2006)

United States Navy

Served on board USS San Francisco for 3 years; qualified Reactor Operator, shutdown reactor operator, electrical operator, auxiliary electrician aft, reactor technician, control point watch and steam plant cleanliness inspector.

According to my separation evaluation comments I was listed as an expert technician “who's technical knowledge of both analog and digital electrical electronic circuitry... ..was instrumental in repairs to three control rod drive mechanisms... ..and an intensive reactor plant recertification test program”.

I was also listed as being a team player “who provided assistance to other divisions on several occasions, including the repair of six major electric plant breakers and two alarm instrument relays.”

As well as an Outstanding watch stander who “performed flawlessly as Reactor Operator following a six month shutdown period, allowing the ship to successfully complete an unprecedented... ..trans-Pacific surface transit.

I received an honorable discharge

(Scanned copy of separation eval comments at <http://zacktronics.com/letter2.html>)

**Additional
Qualifications:**

Mechanical Abilities:

I've independently performed many automotive maintenance activities including replacement of belt-driven components, break pads/shoes, wheel-bearings, oxygen-sensors, CV-joints, radiators, engine-heads as well as transmissions on both cars and motorcycles. My father was a machinist and I've spent countless hours within a general purpose machine shop and within an automotive machine shop where I've observed such operations as the creation of dies for injection molding. I've assisted in the machining of engine cylinder walls, and engine head components.

Software Abilities:

I've done coding in C, Pascal, JavaScript, VB and PHP, Ladder Logic, and assembly. I have experience with I2C, and SPI chip-level protocols. I have 25 years of hobby experience with Linux based systems, including Ubuntu, Redhat, and Yocto Linux. I have experience installing Linux onto an ARM-based board s such as the Raspberry Pi and Beaglebone. I have a practical knowledge of computer networking.

Western Carolina University 1999 Computer Science High School Programming Contest
3rd Place Winner (<http://www.wcu.edu/8687.asp>)

Created an Unbeatable Texas Instrument Calc, Tic-Tac-Toe Program in Nov 1998 during my 10th grade of high-school.

(Available for download at <http://www.ticalc.org/archives/files/fileinfo/71/7155.html>)

Other Work Experience:

I have a life-long history of tinkering and automotive maintenance/troubleshooting. I have also performed various other automotive/motorbike electrical troubleshooting. I also have experience as a laborer at a general construction company and have performed tasks such as framing and residential foundation work.