

Larry Marshall

Electrical Engineer

Contact

Address

Bloomington, IN, 47403

Phone

(731) 796 6428

E-mail

larryemarshall05@gmail.com

LinkedIn

<https://www.linkedin.com/in/larry-marshall-3587841>

WWW

<https://bold.pro/my/resume-larry-marshall/550>

Skills

Perform exceptionally well under stressful and time-sensitive conditions

Excellent

Display proficiency in the program Python

Excellent

Microsoft Office, Mathematica, MATLAB and Excel

Demonstrate basic knowledge of C, C++, JavaScript, PHP and Linux systems

Engineer with 2 years experience in Power Systems R&D as an undergraduate researcher for CURENT, 5 years experience electrical engineering in the field, with 3 as an electronics and PCB Tester Design Engineer, and 1.5 years as an Advanced Battery Test & Evaluation Engineer, 6 years experience in web-based full-stack applications development (concurrent with above), and a veteran having served 8 years (4/4) in the USAF. Skills of note include rapid development/deployment of client-defined applications in production/R&D environments, efficient and automated data pipeline planning, implementation, and testing, from data creation in any file format, data cleaning and standardization, aggregation, categorization, filtering and distribution, all the way through to server/cloud-based database storage, complex circuits analysis and design, efficient algorithm selection, design, and/or utilization, advanced testing methodology development and implementation related to electrical, thermal, environmental, chemical, physical and many more client-driven, constantly evolving industry needs and requirements.

Work History

2021-07 -
Current

Test & Evaluation Electrical Engineer

The Battery Innovation Center, Newberry, IN

- Assessed budget & resource allocation, enacting plan to drive down excessive costs by taking on the responsibilities of 2 engineering contractors, saving the company \$160/hr over the course of 1 year at full-time rates: \$294,400 total as of December 31, 2022, assuming 2 weeks vacation and 14 holidays not paid by company (paid by contracting firm)
- Automated the boring stuff to accomplish the above bullet-point (data-related: conversion, aggregation, distribution, storage, and reporting-related: visualization output as HTML, PNG, SVG, PDF, Excel, Pptx, docx) without breaking a sweat (about 4 months)
- Implement developer-facing Python APIs to drive rapid-development of software from prototype to MVP & beyond, allowing for painless on-the-fly data analysis, real-time metrics and traceability from several concurrent test-automation machines

Average

Formulate strategies for
workplace efficiency

Very Good

Participate well in a team
environment

Very Good

Circuit Design

Good

Microcontrollers

Very Good

Problem-Solving

Very Good

Active Listening

Excellent

Written Communication

Very Good

Python Software Proficiency

Excellent

Excellent Communication

Very Good

Software

Flask

Very Good

Django

Good

Pandas

Excellent

concurrently, and I even added module-level decorators to help log every time my classes and methods were used (helps with review!)

- Collaborated with clients to interface with battery management systems using known, unknown & | | proprietary communications protocols, allowing for measurement-derived data to coincide with BMS-reported values, with serves a variety of purposes
- Leverage the convenient Python libraries and APIs to easily communicate with a variety of serial, differential, & | | wireless communications protocols (CAN, Bluetooth, Ethernet, USB, et al.) to affect control of microcontroller-based measurement-devices, test-automation equipment, and more
- Volunteered to speak at 2 events, where stakeholders and participants include small/large OEMs, advanced ESS & BMS designers, battery test systems designers, chemists, EEs, and more to represent and relay the current state of advanced ESS testing and related technology
- Designed performance & | | abusive tests to affect customer testing intent, relying on constant feedback with PoCs to deliver data-driven insights
- Maintain effective, collaborative relationships with clients, suppliers, and peers in my field to ensure diversity of experience and opinion
- Developed electrical products by studying customer requirements and researching and testing manufacturing and assembly methods and materials.
- Improved testing processes by designing and modifying existing hardware, software, and components and soliciting feedback from technicians.
- Designed and wrote proposal for grant to fund advanced ESS testing in pursuit of a standardized approach to fire-safety and ESS-related thermal propagation mitigation techniques, winning \$6,000,000+ in funding to the company (a designated non-profit)
- More projects and details upon request!



2021-01 -
Current

Member - Engineer

M&M BroTech, New Salisbury, IN

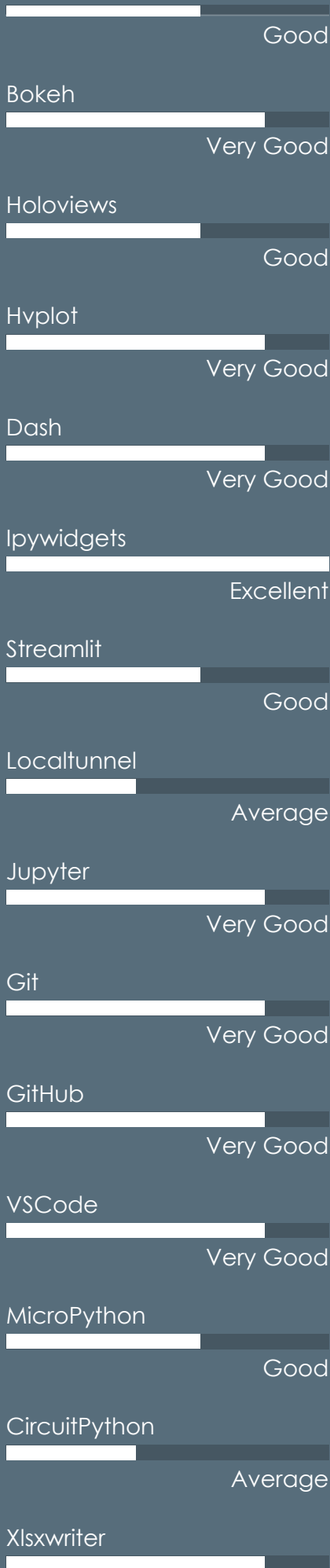
- Develop Python Applications
- Write tests for existing Python apps using pytest (and related)
- Develop for web (JavaScript, Python)
- Design Front/Back-End (UX-Driven Design)
- Implement and | | Integrate RESTful (or other) APIs
- Develop cross-platform software
- Develop PWA for on and offline user-experience
- Recommend & | | implement data workflow design
- Automate Software/Hardware Test
- Optimize current processes (engineering, administrative, and more)
- Design electrical circuits meeting required criteria
- Design & | | Implement electrical test related to hardware, comms, chemistry, off-gassing, performance, abusive, et al.
- Consult on BMS: Design/Comm/Algorithms/Best Practices
- Integrate comm-protocol (CAN, Bluetooth, RS***, et al.) with software & | | hardware
- Consult & | | train & | | implement test-automation using hardware-specific skillset related to advanced battery test (i.e., NI hardware, Maccor, Neware, Arbin)
- Rapid MVP to production/deployment ready (hardware & | | software)

2018-01 -
2021-07

Senior Specialist - Tester Design

Denso, Maryville, TN

- Lead in the design, development, and implementation of a variety of user-facing full-stack applications
- Develop, package and train on several in-house, DENSO Python packages.
- Design, acquire and maintain tester hardware and software (C++) performing all types of electrical/data (CAN, etc..) inspections./li>
- Oversee the efficient use of production project budgets ranging from \$2,000,000 - \$6,000,000



2017-05 -
2018-12

Undergraduate Researcher

University Of Tennessee At Knoxville, Knoxville, TN

- Researched and contributed to the Smart Home Energy Management system (SHEMS)
- Affected real-time load-control using pricing data queried from nyISO a publicly available API and used simulations to estimate cost-savings to the user, and a multitude of potential benefits to the distributor
- Implemented greater user-control with using a web-based, UX-friendly application, intended to be residential-user facing
- Eliminated manual control of loads by hacking signals from remote which controlled load state using Python, a RaspberryPi, and a transceiver, then upon integrating comm with the transceiver and the web-app's back-end (using PHP and NodeJS), we exposed control to the UI. The benefit of this was enormous; feel free to ask me why!

2007-03 -
2011-03

Munitions Systems Journeyman

United States Air Force, Hill Air Force Base, UT

- Performed serviceability inspections on the most cutting-edge bombs, missiles, and rockets in the Air Force's inventory
- Maintained and upgraded advanced munitions systems and locations for maximum impact
- Coordinated 4K munitions deliveries for two squadrons of F-16's in direct support of Operation Iraqi Freedom
- Implemented essential software accountability programs to accurately track and delivery mission critical munitions
- Assisted in 21.1K munitions deliveries to aircraft supporting over 19K missions
- Trained personnel on specific safety requirements and testing and inspecting procedures for munitions and related systems
- Continued to learn throughout active duty term, preparing for a future degree program

Very Good

Languages

Python



JavaScript



PHP



HTML/CSS



C



C++



C#



Veristand



TestStand



Labview



LTSpice



Altium-lite



Education

2018-2

Electrical Engineering

University of Tennessee - Knoxville

GPA: 3.86

2007-01 -

Community College of the Air Force, Military

2012-2

United States Air Force Basic

Accomplishments

- Graduated Summa Cum Laude at 3.86
- Implemented advanced power systems algorithm to optimally determine on-line protection schemes for distribution networks in Excel (Yuck!)
- Hacked wireless devices to affect load-control in a demand-response environment using Python, NodeJS, PHP, and a RaspberryPi running Debian
- Developed and deployed 8 applications to Production environments
- Automated enough boring stuff to save \$246,000/year within 3 months of start date
- Designed tests, developed proposal and assisted in winning \$6,000,000 in state-matched funding for my company to enhance advanced ESS fire mitigation methodologies