




Richard McWhirter

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 1-408-859-0804

 richard.mcwizard.club/professional



Education

B.S. Physics
Minors in Math & Optics
Calvin University
May 2015 | GPA: 3.40

M.S. Physics
San Francisco State University
Dec. 2018 | GPA: 3.60

Skills

Key technical

- Python
- Linux
- Service Oriented Architecture
- C++
- Git
- Scaled Agile (SAFe®)

Other technical

- Docker
- Mathematica
- MATLAB
- Jira
- Confluence
- \LaTeX

Interpersonal

- Communication
- Humility
- Teaching
- Aspiring Ally

Experience

Jan. '20– Mar. '22 **Software Engineer** The Boeing Company
Programmed C++ services for real-time embedded systems on the F/A-18 using in-house HW & OS isolation layers with support for Linux and VxWorks. Coordinated, developed, and rolled out changes to Interface Control Document (ICD) between subsystems, and supported integration testing of new APIs.

Bootstrapped post-flight data analysis pipelines in Python with Pandas that extract and parse logs, unpack raw C++ structure data based on API documentation, and format output for developer and stakeholder presentation.

Created software design documentation, assisted in requirements development, and served on modernization task groups.

Dec. 2018 **Masters Thesis** San Francisco State University
Title: Application of Thermal Wind Equations to the Jovian Troposphere & Stratosphere

Modeled the mean East-West wind speed on Jupiter by combining a novel mathematical model with spectrographic datasets.

Aug. '16 – Dec. '18 **Research Assistant** San Francisco State University
Researched under Dr. Joseph Barranco at SFSU, and collaborated at Dr. Phil Marcus' Computational Fluid Dynamics Lab at UC Berkeley.

Jan. – May '19 **Lecturer** San Francisco State University
Taught PHYS 101 (conceptual physics) to 140 students, and taught one section of and co-coordinated all five sections of the Optics & Thermodynamics laboratory course.

Aug. '15 – Dec. '18 **Graduate Teaching Associate** San Francisco State University
I taught a total of 11 sections of undergraduate laboratory courses from Conceptual Physics, General Physics, Electricity & Magnetism, Optics & Thermodynamics, and Intro Astronomy.

Summers '13 & '14 **Engineering Intern** Silicon Valley X-Ray (SVXR)
Bootstrapped a LabVIEW interface (2013) and developed image analysis routines in Python using OpenCV (2014) for an x-ray microscope semiconductor device inspection prototype at SVXR. In 2014 I was also the office manager of three other interns.

Projects

2022 **Media Server & Homelab**
Built a server/homelab running Ubuntu Server 22.04 with a 48 TB ZFS pool (6x8 TB striped mirrors, 24 TB usable). Currently running 23 always-on containers with Docker Compose, providing storage and web services for myself and over a dozen family members. Highlight services include [Nginx Proxy Manager](#), [Nextcloud](#), [Wireguard VPN](#), [Pi-hole DNS](#), [Wordpress](#), and [Umami web analytics](#).

Additional Learning

2020-'21 **SLU Programming Courses** SLU, through Boeing LTP
I took 324 hours of courses, receiving certificates in Software Design & Architecture and Containerization, with classes on C++, Python, UML, (micro)service architecture, multithreading, network coding, and containerization. This was at Saint Louis University (SLU) through Boeing's Learning Together Program (LTP).



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References

Henry Tong

Software Manager, Boeing
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Relationship: manager

Jim Dabler

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Relationship: coworker, scrum master

Jeremy Strassner

Software Engineer, Boeing
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1-314-406-3763

Relationship: coworker, mentor