# Brian James Davis

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A technical leader energized by cross team collaboration. An engineer who solves problems. A programmer who studies business needs to deliver reliable, automated solutions. A lifelong learner and tinkerer driven by curiosity. A mentor who delights in sharing knowledge.

## TLDR

Daily Drivers: Python, SQL, Lua, Git, Mercurial, Vim, Linux.

Previous Significant Experience: C#, Perl, Bash, PHP, Ansible.

Current Personal Projects: C, Rust, GDScript.

Tinkering With: C++, Java, Javascript.

## Work Experience

### Bonneville Power Administration (Portland, OR)

BPA is a nonprofit federal power marketing administration and part of the Department of Energy. BPA markets wholesale electrical power from 31 federal hydroelectric projects in the Northwest, one nonfederal nuclear plant and several small nonfederal power plants. The dams are operated by the Army Corps of Engineers and the Bureau of Reclamation. BPA provides about 27% of the electric power generated in the Northwest, and operates and maintains about three-fourths of the high-voltage transmission in its service territory. BPA has 2,793 full time employees.

01/2009 - Present (Full time)

Electrical Engineer/GS-13

For the past ten years I have been the technical lead responsible for our substation control system (SCADA). Our users are a diverse group that include substation operators, system dispatchers, maintenance technicians and many others. During this time I've lead multiple efforts to develop innovative solutions to our agency's problems. I've coordinated meetings with users for requirements research, user testing and feedback collection, and system acceptance. I've created prototype and production systems, documented technical designs, and built consensus for particular solutions.

- Create a engineering software tools using python/Qt, and C# that can transform engineering documents (excel) into equipment setting files. These tools automate some of our work and are useful to many groups people across the agency and saved thousands of man-hours. I am the sole developer of these applications which now contain over 10,000 lines of code and an extensive test suite.
- Develop a standard for a Human Machine Interface control system for transmission substations. This was the first effort to develop a computerized control system at BPA after many years of using only electromechanical controls. Our team overcame a great deal of hesitation and reluctance by involving users early and often, repeatedly asking for feedback, conducting extensive user research and testing and most of all by listening and caring about our users. This system has been deployed in one substation with designs currently in flight for three more. I coauthored a paper and presented on this project at the Power Energy and Automation Conference by WSU. For the HMI control system I was the sole developer and primary tester for over 1000 lines of automation code written in Lua that must be safe, reliable and performant. A major application in this automation synchronizes control system state between 4 actors.
- Study Human Factors Engineering (Wickens, Lee, Liu and Becker. 2004. An Introduction to Human Factors Engineering, 2nd Ed.) and present on the subject to peers.
- Develop a networked remote data collection (SCADA) system standard. This was another area where introducing new technology was met with many concerns. Ultimately we succeeded in deploying substation networks by building a cross-agency team, working to find consensus, developing novel documentation, and performing rigorous testing. This system has been deployed at 57 of BPA's 261 substations with more installations every year. Our team installed BPA's first substation area networks using TCP/IP.
- Develop a database and web front end for engineering data files. In this case my colleague and I worked with the main users (engineers in our group and adjacents) to determine work flows and mocked up a system using python and sqlite. We then presented this system to BPA-IT to turn it into a production tool, available both inside and outside the agency. This project was deployed and is in use today.
- Throughout my time at BPA I have provided mentoring and guidance to junior level engineering employees.

Relevant software: Python, C#, Lua, SQL/Postgres, Mercurial, Excel, Bluebeam Revu.

Supervisor: Ken Roberts (kwroberts@bpa.gov)

Okay to contact this Supervisor: Contact me first

**Lattice Semiconductor (Portland, OR)**

05/2006 - 01/2009 (Full time)

Manufacturing Product Engineer

- Developed a Python application for test result visualization. Was used by tiger team to identify process issues during new product development.
- Review and test automated test (ATE) programs written in C.
- Perform experiments and analysis using statistical tools and automated test equipment to identify critical process parameters with the intent to improve yield and quality while reducing cost.
- Troubleshoot manufacturing and customer problems with mixed signal and field programmable devices.

Supervisor: Robert Alvarado ((503) 268-8000)

Okay to contact this Supervisor: Contact me first

**Netsol Communications (Portland, OR)**

05/2005 - 01/2006 (Part-time)

Engineer Intern

- Design PCI based voice over Internet Protocol (IP) solutions
- Investigate use of Asterisk voice over IP server software on x86 platform

Supervisor: Jack Lee (360-606-1177)

Okay to contact this Supervisor: Yes

**Standard Insurance (Portland, OR)**

02/2005 - 05/2006 (Part-time)

Junior Programmer

- Java & Perl web application developement.
- Crystal reports/SQL.

Supervisor: Jeff Alexander (503-321-8150)

Okay to contact this Supervisor: Yes

**Portland State University (Portland, OR)**

01/2004 - 03/2005 (Part-time)

Systems Administrator

- System administration automation in Perl and bash. PHP web applications.

Supervisor: Mark Keller (503-725-8479)

Okay to contact this Supervisor: Yes

## Education

**Portland State University (Portland, OR)**

BSEE 06/2006 with GPA: 3.68

Credits Earned: 122 Quarter hours

Major: Electrical Engineering

Relevant Projects:

- PCI controller simulation in Verilog
- Analog and Digital circuit design in OrCAD Relevant Coursework:
- ECE 331-332 Electromagnetics 8 Credits
- ECE 321-323 Electronics 15 Credits
- PH 317-318 Solid State Physics for Engineers 6 Credits
- ECE 311 Feedback and Control 4 Credits

**Clackamas Community College (Oregon City, OR)**

Transferred to PSU 06/2003 with GPA: 3.78

Credits Earned: 146 Quarter hours

## Affiliations

- Tau Beta Pi Engineering Honor Society - Member
- IEEE - Member
- Registered Professional Engineer (EE-Power) in the State of Washington.

## Hobby Projects

- Created personal integrated development environment for python that I use daily. https://fadedbluesky.com/projects/TheQuest.html
- From 2009 to present, run a personal webserver using LAMP (Linux, Apache, MySql, PHP) software stack. Used my own hardware for about 2 years before switch to various VPS (Virtual Private Server) options. At it's busiest I had eight customers sub-leasing my hosting services.
- In 2016 converted from a hand configured Ubuntu distribution to a Debian based with Ansible configuration.

- Tested a pfSense home firewall for content blocking. Eventually abandoned as too much work to keep up with the content white/blacklists. Switched to using DNSMasq on a dd-wrt router as a whitelist for my kid's devices.
- Joined Exercism.io as a student and a mentor for python.
- In 2018 created a personal website written in Markdown and parsed using python to generate static HTML. http://www.fadedbluesky.com.
- Participated in multiple game jams in 2020 and 2021. https://fadedbluesky.com/projects/Whimsy.html
- Created Electrophone, a music maker app for android. http://fadedbluesky.com/electrophone/index.html
- Wrote Linux Administration for Nerds: http://fadedbluesky.com/tech/LinuxAdminIntro.html a compendium of things I've learned setting up, using, breaking and fixing computers running Linux.

References available upon request.