

Christopher Fuller

Software Developer: Desktop, Internet, Embedded

cfuller@thinkingplanet.net

612-799-1823

<https://thinkingplanet.net/>

Minneapolis, MN

Summary

I bring strong problem solving skills honed during the study of physics at university and my experience in research oriented work environments to the projects I work on. I thrive in the process of discovering how things work (or don't). I'm comfortable in the low-level details and have a lot of experience using C APIs to higher level languages to promote interoperability or achieve novel objectives.

I'm very familiar with microcontroller development, both PIC and AVR architectures, and have done considerable circuit design and PCB layout work in that context.

I focus on open source technologies, but have used proprietary platforms quite successfully, including Visual C/C++, MATLAB, and LabVIEW.

Additional Competencies

- | | |
|---|---|
| <ul style="list-style-type: none">• Python, JavaScript, jQuery• Kotlin, VisualBasic• Unix/Linux/BSD, Git, PyCharm• Internet Protocols, REST APIs• Relational Databases (SQL)• HTML5, XML/XSLT• I2C, 1-wire, parallel interfaces | <ul style="list-style-type: none">• Inkscape, Graphviz, SVG• GTK/Glade, Matplotlib, VisualPython, SWIG• Serial Communications• Eagle, LTSpice, Diptrace• DesignSpark, gEDA• Real Time Clocks |
|---|---|

Links to my LinkedIn profile and GitHub repositories and gists can be found at the web site referenced in the page header.

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Work Experience

8/2019 – 7/2020

Cray Research / Hewlett-Packard Enterprises

- Participated in a small team developing command line administration tools (Python) and web dashboards (Grafana/Kibana) for a high performance computing platform.
- Employed HTTP microservices to implement functionality.
- Used Atlassian collaboration tools (Jira, Confluence, Bitbucket) throughout the process.
- Developed specialized SQL queries (PostgreSQL) to support web dashboards.

1997 - 2018

Equilibrium and Balance Laboratory, Department of Otolaryngology, University of Minnesota

- Writing and maintaining software interfaces to various lab equipment, including National Instruments data acquisition systems, Polhemus motion tracking systems, Bertec force plate, and EloTouch touch screens.
- Writing and maintaining software for data handling and visualization (2D and 3D).
- Polhemus Liberty LATUS: Used SWIG to generate Python bindings to a vendor SDK. Wrote code to post-process data: extract channels, validate integrity, generate plots.
- Bertec force plate and haptic feedback: Serial interface. Calculated and displayed center-of-force. Generated haptic feedback in two dimensions according to deviations in the horizontal plane.
- EloTouch screens: present a moving target to the subject, either generated by software, so linked to the force plate, motion tracker, or any arbitrary source. Records touches and presents feedback, including pressure information.

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2005 - 2009

Esox R&D, Inc

- Development of hardware, firmware and host computer software for medical devices.
- Interfaced with various sensor types (humidity, temperature, pressure, reed switch, A2D).
- PWM control of motors and resistive heating elements.
- Battery backed-up real time clocks.
- Complied with requirements document.
- Participated in revisions to requirements document.
- Custom Python Application Launcher.

1999 – 2002

Hemoxy, LLC

- Wrote PIC microcontroller firmware in C for motor control, sensor acquisition, and serial communication with the host computer. Developed a novel debouncing solution for a reed switch.
- Interfaced with various sensor types (humidity, temperature, pressure, reed switch)
- Operator interface developed in Python with PostgreSQL RDBMS.

Education

- University of Minnesota, Twin Cities
Coursework towards a BS in Physics, with a minor in Computer Science (completed)

Publications

- O'Dea T; Menchaca H; Shudy J; Rohde T; Michalek V; Fuller C; Buchwald H.
"A novel device for measuring the effect of cholesterol on the release of oxygen from red blood cells into myocardial tissue."
Biomedical Instrumentation & Technology. 34(4):283-92, 2000 Jul-Aug.
[Comparative Study. Journal Article. Research Support, Non-U.S. Gov't]
UI: 11004999

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Continuing Education

- *Circuits and Electronics*. Completed December 2014 through EdX. Taught by Anant Agarwal, MIT. [verified certificate](#)
- *HTML5 Coding Essentials and Best Practices*. Completed December 2015 through EdX. Taught by Michael Buffa, University Côte d'Azur. [verified certificate](#)

Assessments

- *IKM Python3*. Score 94, Percentile 89. [score card](#)