

Dr. Bill Mills

✉ - mills.wj@gmail.com

🐱 - BillMills

☎ - 917.215.8062

SKILLS

TOOLS & INFRASTRUCTURE

- Containerization / Docker
- Git & GitHub
- AWS
- Travis CI
- SQL
- Bash
- Node.js
- IPython

LANGUAGES

Professional

- Python
- JavaScript
- CSS
- HTML

Some Experience

- C / C++
- R

PACKAGES & FRAMEWORKS

Data Analysis

- Scikit-Learn
- NumPy & Pandas
- Matplotlib
- Keras (Machine Learning)
- ROOT

Web

- Mustache.js
- Plotly.js
- Dygraphs
- X-Tags
- Flask
- Jekyll

PHYSICS

- Nuclear Structure
- High Energy

OTHER

- Technical Training
- Project Management
- Presentation & Communication

Professional Experience

Docker Inc. (NYC)

LEAD TECHNICAL TRAINER, Sept. '16 - Present

Led training for students and educators, responsible for oversight and creation of training materials for enabling clients on all aspects of the Docker software platform; delivered training directly to clients and led train-the-trainer events to enable other educators.

- *Tools:* Docker, CSS, HTML, Git & GitHub
- *Outcomes:* Technical curriculum & workshop deliveries

International Quality Controlled Ocean Database DEVELOPER & DATA SCIENTIST, Aug '14 - Present

Volunteer developer and data scientist for the automatic data quality control project for the [IQuOD](#) collaboration. Consulted on software architecture and design, including containerization using Docker; software validation and testing in Python, including continuous integration using Travis CI; and cloud deployment on Amazon Web Services. Made leading code contributions in Python to all aspects of the project.

- *Tools:* Python, Keras, Travis CI, AWS, Git & GitHub
- *Outcomes:* [Data QC testing framework](#)

TRIUMF National Laboratory (Vancouver, BC)

SCIENTIFIC SOFTWARE DEVELOPER, Aug. '15 - Jul '16

Data acquisition specialist for the GRIFFIN Collaboration. Developed web applications primarily in JavaScript to support experimental design, monitoring and control. Consulted on database design structure and implementation, as well as on collaboration-scale software management using Git and GitHub.

- *Tools:* JavaScript, CSS, HTML, Git & GitHub
- *Outcomes:* Web applications (see code samples for demos)

Mozilla Foundation (Vancouver, BC)

COMMUNITY MANAGER, Aug '14 - Aug '15

Community Manager for the Mozilla Science Lab. Led numerous curriculum development, training and workshop projects and events, including curriculum on code review and usability testing; launched and mentored a worldwide network of meetup groups designed to teach programming skills to scientists and researchers.

- *Tools:* Jekyll, GitHub
- *Outcomes:* [Worldwide meetup group network](#), programming curriculum

TRIUMF National Laboratory (Vancouver, BC)

POST DOCTORAL FELLOW, Sept '12 - Jul '14

Built a suite of web apps, primarily in JavaScript, for monitoring and controlling several experiments; project managed a team of about 6 building a high-performance data analysis package for analyzing petabyte-scale datasets; introduced CSS and UI/UX best practices to numerous

projects and introduced modern code and project management to the collaboration.

- *Tools:* JavaScript, CSS, HTML, Git & GitHub
- *Outcomes:* Web applications (see code samples for demos)

ATLAS Collaboration

PhD STUDENT, May '07 - Jul '12

Graduate student (UBC) working on the ATLAS experiment at the Large Hadron Collider, CERN. Wrote and validated four novel statistical algorithms in C++ for extracting velocity measurements from noisy ionization chamber data.

- *Tools:* C++, ROOT, distributed grid computing resources
- *Outcomes:* Four new velocity measurement algorithms for the ATLAS experiment

Code Samples

IQUOD

One of two main developers on the [AutoQC project](#) for the International Quality Controlled Ocean Database, a Python framework to automate and optimize the validation of oceanographic data for use in climate and modeling studies. Developed as open source side-project.

GRIFFIN Collaboration

Lead web developer for GRIFFIN's suite of web apps for experimental design, monitoring and control. See ex the Beam Companion Explorer ([demo](#) | [code](#)), and the GRIFFIN Efficiency Calculator ([demo](#) | [code](#)).

Selected Publications

[The TIGRESS Integrated Plunger Ancillary Systems for Electromagnetic Transition Rate Studies at TRIUMF](#), P. Voss et al, NIM Phys. Res. A 746 pp 87-94 (2014) - *contributed instrument control software*.

[Measuring the velocity and mass of stable massive particles using the ATLAS detector at the LHC](#), Ph.D. thesis (*predominantly algorithmic design & implementation*, 2012)

[Search for the low-lying \$\(\pi 1g_{9/2}^4\)6_{2+}\$ in \$^{94}\text{Ru}\$](#) , W. Mills et al, Phys. Rev. C 75, 047302 (2007)

Education

Ph.D. (UBC), '07-'12

Particle physics.

Undergrad (SFU), '01-'06

Physics (Honors) w/ minor in Nuclear Science

Teaching

Docker

Lead technical trainer for Docker, Inc. Delivered technical workshops on containerization, container orchestration and related enterprise tooling; made leading contributions to develop Docker's curriculum into a well-regarded, enterprise-grade training program.

Software Carpentry

Co-taught or mentored at 13 workshops for Software Carpentry from 2014-16, including 5 train-the-trainers workshops; elected to the Software Carpentry Steering Committee for 2016; made several substantial curriculum contributions to that group; member of their Mentorship Subcommittee in 2015.

Teaching Kits

Wrote curriculum for MSL on [code review](#), on [usability testing](#), and on [Instructor Training](#).

Mozilla Study Groups

Founded & designed the participatory ed. program for Mozilla Science Lab; developed [web assets](#), wrote [how-to guide](#), piloted program [at UBC](#).

Academic

Five years experience as laboratory teaching assistant in undergrad. physics courses at Univ. British Columbia, including curriculum development.