Carl Vitzthum

Brookline, MA • carl.vitzthum@gmail.com • carlvitzthum.github.io

Motivated developer seeking mentorship and new technical challenges. Experience planning, developing, and operating cloud-based, open-source solutions on interdisciplinary teams.

Languages:	*Python, JavaScript, R, Bash, MATLAB/Octave*
Technologies:	*AWS, Elasticsearch, Pyramid, ReactJS, Docker, Travis CI, PostgreSQL, UNIX*
Processes:	*Version Control with Git, RESTful API Design, Unit and Integration Testing, Cloud DevOps, Code Review, Python Packaging, Machine Learning*

WORK EXPERIENCE

Dept. Biomedical Informatics • Harvard Medical School • Boston, MA   **2016 - Present**
AWS, Elasticsearch, Pyramid, ReactJS, Docker, Travis CI, PostgreSQL

- Led back-end engineering and DevOps of the 4D Nucleome Data Coordination and Integration Center (4DN-DCIC), an NIH-funded center supporting over 100 genomics labs with our cloud-based data portal
- Developed back-end features and automated tests
- Managed the AWS infrastructure for the data portal and associated projects
- Promoted three times

Held the following positions at HMS, detailed below:

Senior Software Developer   **2019 - Present**
- Led back-end development and DevOps of the Clinical Genomics Analysis Platform (CGAP)
- Established back-end roadmap and coding best practices for the CGAP MVP
- Hired and onboarded multiple developers, including the future lead developer for CGAP
- Developed back-end features for *Tibanna,* a cloud-based pipeline runner (published in *Bioinformatics)*

Back-End Developer   **2018 - 2019**
- Became lead developer for the 4DN-DCIC and solely responsible for the back-end and DevOps
- Created scalable, cloud-based system for real-time indexing of 4DN metadata into Elasticsearch
- Implemented a Dockerized JupyterHub solution on AWS available to 650+ 4DN portal users

Junior Software Developer   **2017 - 2018**
- Created *Foursight*, a serverless web application used internally to schedule and display customized Python scripts for data portal management
- Created *hic2cool,* an actively used bioinformatics Python package published on PyPi
- Developed *dcicutils*, a Python API for the portal published on PyPi

Junior Scientific Programmer   **2016 - 2017**
- Overhauled Elasticsearch setup for the portal, including index mappings and query building
- Bioinformatics analysis and data management on HMS compute cluster for the Park Lab

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EDUCATION

Harvard Extension School • Cambridge, MA   **July 2019**
Data Science Graduate Certificate

Colby College • Waterville, ME   **BA, May 2016**
Major: Computational Biology • *Minor:* Chemistry   **GPA: 4.00, *summa cum laude***