RICH PAULOO

I have coded workflows that stream real-time data from remote sensor networks[1], built dashboards to bring clarity to massive datasets[2], developed physical simulation models of groundwater flow and contaminant transport[3], made visualizations to improve machine learning interpretability[4], and built R packages[5].

Completing a highly quantitative, computational PhD has taught me to how to stay organized, rapidly learn new material, use skepticism to identify opportunities for improvement, ask creative questions, effectively collaborate, and communicate to diverse audiences.

I am currently searching for positions where I can work on technical, challenging, data-intensive problems for the betterment of society.

EDUCATION

2020 | 2015

PhD. Candidate, Hydrogeology

University of California Davis — Davis, CA

- Physical simulation modeling of groundwater flow & solute transport.
- Elected representative in the Graduate Student Assembly.
- NSF fellow in Climate Change, Water, and Society IGERT.
- Built groundwaterstatement.org[6], signed by over 1,000 groundwater experts worldwide.

2011 | 2006

B.S., Integrative Biology (minor in Conflict Resolution)

University of California Berkeley — Berkeley, CA

- Delivered departmental commencement speech[7] to ~ 5,000 people.

RESEARCH EXPERIENCE

2020 | 2018

Data Engineer

UC Water — Davis, CA

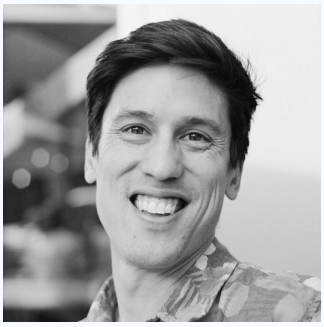
- Constructed a data processing pipeline and web dashboard[8] to stream real-time groundwater data via a wireless sensor network.

2020 | 2015

Graduate Student Researcher

Fogg Lab — UC Davis

- Work with large hydrologic datasets, numerical groundwater flow and contaminant transport models, & network optimization models.
- Developed novel models of well failure, groundwater salinization, and contaminant transport in porous media.
- Regularly use R, Python, Git, Bash, MODFLOW, RW3D, Paraview, Illustrator, AWS, Linux, ArcGIS, Envi, LaTeX.



View this CV online with links at *richpauloo.com/cv*

CONTACT

- richpauloo@gmail.com
- RichPauloo
- github.com/richpauloo
- richpauloo.com
- (415) 275-4981

FOREIGN LANGUAGE SKILLS

Conversational Spanish

LANGUAGE SKILLS

- R
- SQL
- Python
- Bash

*Made with **pagedown** in R.*

The source code is available at github.com/richpauloo/cv.

Last updated on 2020-02-22.

2019 | 2018

Data Lab Researcher

Computational Institute for Geodynamics (CIG) — UC Davis

- NLP, text mining, and network analysis in R on a corpus of ~600 PDFs.
- Developed an R Shiny dashboard[9] to understand the corpus.
- Results published here[10].

2012 | 2011

Research Assistant

Fine Lab — UC Berkeley

- Experimental design, data collection, data analysis, and writing of a report on invasive plant species in Berkeley's Strawbery Canyon.

2012

Biological Research Assistant

Rizzo Lab — UC Davis

- Collected and managed field data to study intersection of fire, drought, and Phytophthora ramorum, the Sudden Oak Death agent.

2011 | 2010

Biological Research Assistant

Sinervo Lab — UC Santa Cruz

- Backpacked to remote alpine field sites to deploy temperature sensors, and study climate change impacts to on the American pika.
- Identified & selected high-alpine field survey sites via satellite imagery.

TEACHING & LEADERSHIP EXPERIENCE

2016 | 2015

Expedition Leader

National Geographic & Adventures Cross Country — Thailand

- Coordinated all aspects of multi-week international travel.
- Facilitated teambuilding, group dynamics, and cultural integration.

2015 | 2013

Site Manager & Educator/Guide

NatureBridge — Yosemite & the Marin Headlands, CA

- Coordinated with Operations to run a 200-student, 60 employee campus, which involved frequent public speaking.
- Lived and worked with a close team.
- Trained in wilderness guiding and backcountry safety.
- Served as primary liaison between the organization and clients.

2013 | 2012

Environmental Science Educator

San Mateo County Office of Education — La Honda, CA

- Designed cirriculum & taught science to diverse students.
- Worked and lived with a close team of educators.
- Frequent improvisational public speaking to large audiences.

Before pursuing my PhD, I spent 3 years teaching diverse audiences in environmental education. I worked in Yosemite, Thailand and the Marin Headlands, and honed skills in public speaking, interpersonal team development, group facilitation, and critical listening. Living with my coworkers in tight teams taught me patience and cooperation. During summers I guided expeditions in the wilderness and abroad with National Geographic.

GRANTS AND AWARDS

2019 **Microsoft AI for Earth (national)**

$37,571

- AI-enabled forecasting of domestic well failure

2019 **AGU Outstanding Student Presentation (national)**

$200 and free 2020 registration

- Awarded to the top 3-5% of presenters. View presentation[11].

2019 **2019 California Water Data Challenge (statewide)**

$1,500

- Created calwaterquality.com[12], a statewide data portal that integrates and visualizes massive water quality data sets, and auto-generates water quality reports for more than 2,000 California public water systems.
- Blog post[13] about the project summarizing my motivation.

2018 **NASA Data Visualization Competition (national)**

$1,400

- Machine learning for domestic well failure[14].

2018 **2018 California Water Data Challenge (statewide)**

$1,500

- Used large state databases to build and calibrate a predictive model[15] of domestic well failure in California's Central Valley.

2016 **NSF-GRFP Honorable Mention (national)**

2015 **NSF-IGERT in Climate Change, Water and Society (national)**

$111,000

SELECTED PUBLICATIONS, POSTERS, AND TALKS

2020 **A low cost, open source wireless sensor network for real-time groundwater monitoring[16]**

Water (in prep)

- Calderwood, Andrew & **Pauloo, R.** & Yoder, Alysa & Fogg, G.E.

2019 **Assessing Impact of Outreach through Software Citation for Community Software in Geodynamics[17]**

Computing in Science & Engineering. PP. 1-1. 10.1109/MCSE.2019.2940221.

- Hwang, L. & **Pauloo, R.** & Carlen, J.

2019 **Domestic Well Vulnerability to Drought Duration and Unsustainable Groundwater Management in California's Central Valley**[18]

Environmental Research Letters 10.1088/1748-9326/ab6f10

· **Pauloo, R.** & Dahlke, H. & Escriva-Bou, A. & Fencl, A. & Guillon, H. & Fogg, G.E.

2019 **Anthropogenic Basin Closure and Groundwater SALinization (ABCSAL)**[19]

Under-Review (copy available upon request.)

· **Pauloo, R.** & Fogg, G.E. & Guo, Z.

2019 **Show me the Data**[20]

California Water Data Summit — Davis, CA

2019 **An Overview of Domestic Well Vulnerability in California's Central Valley: Opportunities for Informed Risk Assessment**[21]

California Environmental Protection Agency — Sacramento, CA

2019 **Hydraulic gradients modulate non-Fickian transport in heterogeneous porous media**[22]

American Geophysical Union — San Francisco, CA

· **Pauloo, R.** & Fogg, G.E. & Guo, Z. & Henri, C.V.

2019 **Anthropogenic Basin Closure and Groundwater Salinization**[23]

Chapman Conference on Aquifer Sustainability — Valencia, Spain

· **Pauloo, R.** & Fogg, G.E. & Guo, Z. & Harter, T.

2018 **An Interactive Mapping Interface to the California Online State Well Completion Report Database**[24]

UC Water Annual Meeting — Sacramento, CA

· **Pauloo, R.**

2015 **The Past Present and Future: Long-term climate trends and water management history in California**[25]

Water Scarcity in the West — Davis, CA

· **Pauloo, R.** & Pinheiro, M.

SELECTED DATA SCIENCE WRITING

2019 **Using Twilio to Text Myself After Long Running Jobs**[26]

2019 **Race to the Bottom**[27]

Exploratory data analysis and science journalism California well construction trends.

I regularly write about data science, visualization, machine learning, and hydrology on my blog.

2019 **Text Analysis of the Mueller Report**[28]
Text mining and sentiment analysis.

2018 **Installing the R kernel in Jupyter Lab**[29]
How-to guide visited ~2,000 times per month.

2018 **Tidy Chi Squared stats in infer**[30]

CERTIFICATIONS

Wilderness First Responder
National Outdoor Leadership School

Software Carpentry Instructor
Software Carpentry

LINKS

1: https://www.richpauloo.com/project/lcsn/
2: https://caccr.github.io/
3: https://www.richpauloo.com/publication/vhgr/
4: https://twitter.com/RichPauloo/status/1124470765095538688
5: https://github.com/richpauloo/textme
6: https://www.groundwaterstatement.org
7: https://www.youtube.com/watch?v=vBnvVL6XQTw&t=2s
8: https://www.richpauloo.com/project/lcsn/
9: https://richpauloo.shinyapps.io/cig_nlp
10: https://ieeexplore.ieee.org/document/8827910
11: https://www.richpauloo.com/talk/2019-agu/
12: http://calwaterquality.com
13: https://www.richpauloo.com/post/cawdc-2019/
14: https://www.richpauloo.com/talk/2018-nasa/
15: https://www.richpauloo.com/publication/well-failure/
16: https://www.richpauloo.com/publication/lcsn/
17: https://www.richpauloo.com/publication/cig/
18: https://www.richpauloo.com/publication/well-failure/
19: ABCSAL]https://www.richpauloo.com/publication/abcsal/
20: https://www.richpauloo.com/talk/2019-water-data-summit/
21: https://www.richpauloo.com/talk/2019-cal-epa/
22: https://www.richpauloo.com/talk/2019-agu/
23: https://www.richpauloo.com/publication/abcsal/
24: https://shiny.lawr.ucdavis.edu/shiny/oswcrd/

25. https://speakerdeck.com/richpauloo/weathering-change
26. https://www.richpauloo.com/post/textme/
27. https://www.richpauloo.com/post/race-to-the-bottom/
28. https://www.richpauloo.com/post/mueller/
29. https://www.richpauloo.com/post/jupyter/
30. https://www.richpauloo.com/post/infer/