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

- Regional scale physical simulation modeling of groundwater flow and contaminant transport.
- Elected graduate group representative in the Graduate Student Assembly.
- National Science Foundation fellow.

2011 | 2006

B.S., Integrative Biology (minor in Conflict Resolution)
University of California Berkeley

📍 Berkeley, CA

💻 RESEARCH EXPERIENCE

2020 | 2018

Data Engineer
UC Water

📍 Davis, CA

- Constructed a data processing pipeline and web dashboard[6] to stream real-time groundwater data via a wireless sensor network.

2020 | 2015

Graduate Student Researcher
Fogg Lab

📍 UC Davis

- Primarily work with large hydrologic datasets, numerical groundwater flow and contaminant transport models, and network optimization models.
- Developed methods to efficiently upscale anomalous contaminant transport in heterogeneous porous media thus informing regional scale groundwater quality modeling.
- 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

LANGUAGE SKILLS

R
SQL
Python
Bash
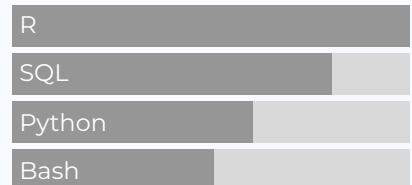
FOREIGN LANGUAGE SKILLS

Conversational Spanish

Made with the R package page-down.

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

Last updated on 2020-01-02.

2019 | 2018

Davis 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[7] to understand the corpus.
- Results published here[8].

2012 | 2011

Research Assistant

Fine Lab   📍 UC Berkeley

- Collected field data and independently analyzed and constructed statistical models pertaining to plant species diversity.

2012

Biological Research Assistant

Rizzo Lab   📍 UC Davis

- Collected and managed field data to understand dynamics between fire, drought, and Phytophthora ramorum, which causes Sudden Oak Death.

2011 | 2010

Biological Research Assistant

Sinervo Lab   📍 UC Santa Cruz

- Identified high-alpine field sites via satellite imagery.
- Deployed remote temperature sensors to study climate change impacts to high alpine mammals.

💼 PROFESSIONAL & TEACHING 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

NatureBridge   📍 Yosemite National Park & the Marin Headlands

- Coordinated with Operations to run a 200-student campus with ~60 employees.
- Served as primary liaison between the organization and clients.
- Frequent improvisational public speaking to large (e.g., 200 people) audiences.

2013 | 2012

Environmental Science Educator

San Mateo County Office of Education   📍 La Honda, CA

- Designed and taught environmental science programs to diverse students.

Before beginning 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.

🎗 GRANTS AND AWARDS

2019 **2019 California Water Data Challenge (statewide)**
$1,500

· Created calwaterquality.com[9], a statewide water quality data portal that (1) integrates and visualizes massive statewide water quality data sets, (2) auto-generates water quality reports for more than 2,000 California public water systems.
· Wrote a blog post[10] about the project summarizing my motivation and thoughts.

2018 **NASA Data Visualization Competition (national)**
$1,400

· Machine learning for domestic well failure[11].

2018 **2018 California Water Data Challenge (statewide)**
$1,500

· Used large state databases to build and calibrate a predictive model[12] 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

2019 **Assessing Impact of Outreach through Software Citation for Community Software in Geodynamics[13]**
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**
Accepted at Environmental Research Letters (copy available upon request.)

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

2019 **Anthropogenic Basin Closure and Groundwater SALinization (ABCSAL): An Unrecognized Threat to Water Quality Sustainability**
Under-Review (copy available upon request.)

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

2019 • **Show me the Data**[14]
California Water Data Summit ⚲ Davis, CA

2019 • **An Overview of Domestic Well Vulnerability in California's Central Valley: Opportunities for Informed Risk Assessment**[15]
California Environmental Protection Agency ⚲ Sacramento, CA

2019 • **Anthropogenic Basin Closure and Groundwater Salinization**[16]
Chapman Conference on Aquifer Sustainability ⚲ Valencia, Spain
· **Pauloo, R.** & Fogg, G.E. & Guo, Z. & Harter, T.

2018 • **Hydraulic gradients modulate non-Fickian transport in heterogeneous porous media**[17]
American Geophysical Union ⚲ Washington, DC
· **Pauloo, R.** & Fogg, G.E. & Guo, Z. & Henri, C.V.

2018 • **An Interactive Mapping Interface to the California Online State Well Completion Report Database**[18]
UC Water Annual Meeting ⚲ Sacramento, CA
· **Pauloo, R.**

2015 • **The Past Present and Future: Long-term climate trends and water management history in California**[19]
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**[20]

2019 • **Race to the Bottom**[21]
Exploratory data analysis and science journalism California well construction trends.

2019 • **Text Analysis of the Mueller Report**[22]
Text mining and sentiment analysis.

2018 • **Installing the R kernel in Jupyter Lab**[23]
How-to guide visited ~2,000 times per month.

2018 • **Tidy Chi Squared stats in infer**[24]

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

🔗 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.richpauloo.com/project/lcsn/
 7: https://richpauloo.shinyapps.io/cig_nlp
 8: https://ieeexplore.ieee.org/document/8827910
 9: http://calwaterquality.com
10: https://www.richpauloo.com/post/cawdc-2019/
11: https://www.richpauloo.com/talk/2018-nasa/
12: https://www.richpauloo.com/publication/well-failure/
13: https://www.richpauloo.com/publication/cig/
14: https://www.richpauloo.com/talk/2019-water-data-summit/
15: https://www.richpauloo.com/talk/2019-cal-epa/
16: https://www.richpauloo.com/publication/abcsal/
17: https://www.richpauloo.com/talk/2019-agu/
18: https://shiny.lawr.ucdavis.edu/shiny/oswcrd/
19: https://speakerdeck.com/richpauloo/weathering-change
20: https://www.richpauloo.com/post/textme/
21: https://www.richpauloo.com/post/race-to-the-bottom/
22: https://www.richpauloo.com/post/mueller/
23: https://www.richpauloo.com/post/jupyter/
24: https://www.richpauloo.com/post/infer/