

EDUCATION

Springboard Data Science Bootcamp
Machine Learning Concentration

Anticipated August 2024

Ph.D., Geological Sciences

May 2016

The University of Texas at Austin, Jackson School of Geosciences

Dissertation: *Flash Floods and Unsteady Flows: Sediment Transport, Turbulence, and Bed Surface Armoring*

Adviser: Joel Johnson

Bachelor of Arts, Applied Mathematics, Operations Research Concentration

May 2009

University of California at Berkeley

SKILLS AND QUALIFICATIONS

- Expertise in quantitative sediment transport, fluvial geomorphology, hydrology, and hydraulics
- Able to communicate and build consensus within groups of technical and non-technical people, stakeholders and clients
- Scientific computing and visualization in Python: pandas, numpy, scipy, matplotlib, geopandas, seaborn; SQL, APIs
- Data expertise: large datasets, timeseries, geospatial, remotely sensed, climate projections, JSON, field data
- Other software: Matlab, ArcGIS(Pro), Civil 3D, HEC-RAS, HEC-HMS, SRH2D, MS Office
- Field gaging installation, maintenance, and calibration: e.g. precipitation, streamflow, sediment flux, water quality
- Detail oriented and thorough; finish all aspects of a task
- Good problem solver; outside the box solutions to tough logistical and analytical problems including large datasets
- Work in an organized, time efficient manner; able to prioritize and plan work schedules

EXPERIENCE

Balance Hydrologics, Berkeley, CA

Senior Geomorphologist/Hydrologist

May 2015 – Mar 2022

- Project lead for multiple large interdisciplinary projects (biologists, engineers, geologists) with multiple stakeholders including parks, conservation, permitting, municipal, and funding agencies
- Led all big data or scientific computing projects, including climate change projections, ML model development, remote sensing data, and open-source modeling tools
- Developed internal tools and processes for combining datasets with different temporal and spatial scales, including archival database of field gaging datasets
- Complete successful project grant applications for clients
- Led multi-person geomorphic and hydrologic surveys, including equipment installation, maintenance, and data workup
- Mentored junior staff in company procedures, tools, and scientific observation techniques

Department of Geological Sciences, The University of Texas at Austin

Aug 2011 – Aug 2016

Graduate Teaching and Research Assistant

- Extensive data post-processing of Accelerometer, 3D Velocity, and Terrestrial Lidar data using Python and Matlab
- Design and program custom-built accelerometer- and gyroscope-embedded “Smart Rock”
- TA intro to geology and near-surface geophysical data collection techniques in the field, give class demonstrations

M-Factor Inc., San Mateo, CA

Jul 2009 - Jun 2011

Operations Analyst

- Managed trade and financial datasets for consumer packaged goods clients for use in financial analysis software

SELECTED PUBLICATIONS

Pretzlav, K. L. G., Johnson, J., P., L., 2020, Smartrock Transport in a Mountain Stream: Bedload Hysteresis and Changing Thresholds of Motion, Water Resources Research, 29 October 2020, <https://doi.org/10.1029/2020WR028150>

Pretzlav, K., Donaldson, E., Tu, D., Brown, S., 2021, Pond Inundation and Timing (Pond-It) Model Guidebook: An Open-Source Hydroperiod Water Balance Model for Developing Climate-Adaptive Pond and Wetland Habitat Management Strategies, consulting report and guidebook for Balance Hydrologics, 16 April 2021.

[\(Pond-IT Online\)](#) [\(Pond-IT GitHub\)](#)

Pretzlav, K., Donaldson, E., Shaw, D., Redwood Creek Floodplain Feasibility Report, Consulting report prepared for Golden Gate National Parks Conservancy, August 2022. [\(Report Link\)](#)

References available upon request