Wren Raming

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EDUCATION

ARIZONA STATE UNIVERSITY
PhD in Geological Sciences
Fall 2022 | Tempe, AZ
Cum. GPA: 3.8 / 4.0

UNIVERSITY OF UTAH
BS in Geosciences
2012-2015 | Salt Lake City, UT
Conc. in Geology
Minor in Physics
Dean's List (All Semesters)
Cum. GPA: 3.8 / 4.0

UNIVERSITY OF UTAH
BS in Economics
2004-2009| Salt Lake City, UT
Cum. GPA: 3.5 / 4.0

COURSEWORK

GRADUATE
Geomorphology
Remote Sensing
Python For Graduate Research
Hydrology
Linear Regression Analysis

UNDERGRADUATE
Intro to Computing In Physics
Field Camp
Digital Mapping and ArcGIS
Sed. Strat.
Structural Geology
Differential Equations and Linear Algebra
Applied Statistics

SKILLS

PROGRAMMING
Competent:
Python• Matlab• Unix Shell• C++ • Git
Familiar:
R•HTML

GEO SPATIAL
Competent:
TopoToolbox• QGIS• ArcGIS• CloudCompare
Familiar:
GDAL•ENVI

SUMMARY

Dedicated Earth scientist specializing in hydrology and surface processes, with a strong background in geological sciences. Proven track record of impactful research, including publications in top peer-reviewed journals and presentations at major conferences. National Graduate Research Fellow with a history of securing grants. Adept at interdisciplinary collaboration and experienced in numerical modeling, best-practices in software development, and GIS.

PROFESSIONAL EXPERIENCE

CENTER FOR HYDROLOGIC INNOVATIONS | Postdoc
2023-present | ASU Tempe, Az

- Employing a distributed hydrologic model to analyze the effects of tree thinning on moisture flux partitioning at catchment scales.
- Overhauling legacy code of the TIN-based Real-time Integrated Basin Simulator (tRIBS) to enhance maintainability, robustness, and performance.
- Designing and executing multi-year tRIBS numerical experiments of small (4 km^2) forested watersheds with 80,000+ cells on Arizona State University's High-Performance Computing Cluster.
- Developing an open-source Python interface for integrated distributed hydrological modeling using tRIBS (2000 lines of code and counting).
- Supervising three graduate research projects for a local utility company, focusing on modeling the impacts of forest thinning in Central Arizona's forested watersheds.
- Working with technology partners in developing a web-based application of tRIBS.

SCHOOL OF EARTH AND SPACE EXPLORATION | PhD
2016-2022 | ASU Tempe, Az

- Conducted original and significant research on the impact of extreme flood events and climate on landscape evolution of the Hawaiian Islands. Including documenting and identifying the role of waterfalls in recording spatial thresholds of extreme flood events.
- Successfully secured and managed three grants and two fellowships resulting in $138,000 in external funding, including the prestigious NSF Graduate Research Fellowship Program.
- Effectively communicated research findings to the broader scientific community through oral and written mediums, including 4 research talks and 3 posters at scientific conferences and thus far have published 2 peer reviewed papers.

UNIVERSITY OF UTAH | Undergraduate and Research Assistant
2013-2015 | Salt Lake City, UT

- Conducted extensive remote sensing studies on playa dynamics, playa mineralogy, and their potential as dust hazards.
- Co-authored one peer-reviewed paper, one book chapter, and presented two posters at scientific conferences.

PUBLICATIONS

MANUSCRIPTS

Raming, L.W. , Vivoni, E.R., Mascaro, G., Cederstrom, C.J., Ko, A., Schreiner-McGraw, A.P., Cazares-Rodriguez, J.E., Lizarraga-Celaya, C., (2024), tRIBS v5.2: A multi-resolution, parallel platform for tributary hydrology in forest applications. *Journal of Open Source Software*. (*in prep*)

Raming, L.W. , Whipple, K.X., Strauch A. M., (2024), Limits to Knickzone Retreat and Bedrock River Incision on the Hawaiian Islands. *Earth Surface Processes and Landforms*. https://doi.org/10.1002/esp.5806

Raming, L.W., Whipple, K.X., (2022). When knickzones limit upstream transmission of base-level fall: An example from Kaua'i, Hawai'i. *Geology*. https://doi.org/10.1130/G50019.1

Bowen, B., Kipnis, E., **Raming, L.W.**(2017).Temporal Dynamics of Flooding, Evaporation, and Desiccation Cycles and Observations of Salt Crust Area Change at the Bonneville Salt Flats, Utah. *Geomorphology*. https://doi.org/10.1016/j.geomorph.2017.09.036.

BOOK CHAPTERS

Jewell, P., Nelson, D., Bowen, B., and **Raming, L. W.** (2016). Insights into Lake Bonneville Using Remote Sensing and Digital Terrain Tools. In *Lake Bonneville: A Scientific Update*. Elsevier

SELECT CONFERENCE ABSTRACTS

Raming, L. W., Mascaro, G., Meyer, S., Barton, E., Svoma, B. M., Vivoni, E.R.,(2023 December). Controls on Non-linear Response to Forest Thinning: Insight from Distributed Hydrological Modeling of Tree Removal at Small Catchment Scales. Poster at AGU Fall Meeting

Raming, L. W. & Whipple, K. X. (2021 December). Limits on the Effectiveness of Waterfalls and Bedrock River Incision in Landscape Evolution. Talk at AGU Fall Meeting

Raming, L. W. , Zhiang, C., Keating, D., Whipple, K. X., Yager, E., Strauch, A. M., Das, J. (2020 December). Extreme Discharges and Thresholds of Boulder Mobility in Steep Mountainous Streams on Maui, Hawai'i. Poster at AGU Fall Meeting

Raming, L. W. & Whipple, K. X. (2020 October). Canyon formation on the Hawaiian Islands: Can a single threshold of river incision explain observed patterns of incision? Talk GSA Fall Meeting

Raming, L. W. & Whipple, K. X. (2019 September). Knickpoints of Kaua'i, Hawai'i: Accelerated Incision or Lithological Control? Talk at GSA Fall Meeting

Raming, L. W. & Whipple, K. X. (2017 December). Thresholds and the Evolution of Bedrock Channels on the Hawaiian Islands. Poster presented at AGU Fall Meeting

Raming, L. W. , Farrand, W. H., & Bowen, B. B. (2015 December). Mineralogical composition and potential dust source of playas in the Western U.S. and Australia as remotely identified through imaging spectroscopy. Poster presented at AGU Fall Meeting

Raming, L. W. & Bowen, B. B. (2014 October). Spatiotemporal analyses of environmental conditions and surface processes at the Bonneville Salt Flats. Poster presented at GSA Annual Fall Meeting

PEER REVIEW

2024, February	Hydrological Sciences Journal
2023, July	Environmental Modeling & Software

AWARDS

FELLOWSHIPS

2020	SESE Summer Exploration Graduate Fellowship
2018	NSF Graduate Fellowship

HONORS

2019 - 2020	Graduate Excellence Award
2019	Distinguished Advisor Award
2018 - 2019	Graduate Excellence Award
2016	ASU SESE First Year Award
2015	U of U Geo. Dept. Excellence In Undergraduate Research Award

GRANTS

2019	GSA Graduate Student Research Grant
2019	ASU Graduate and Professional Student Association Research Grant
2015	University of Utah, Doelling Scholarship
2014 - 2015	University of Utah, Undergraduate Research Opportunity Award
2014 - 2015	University of Utah, GCSC Travel Grant
2014 - 2015	University of Utah, Mineralogical Society of Utah Scholarship
2013 - 2014	University of Utah, Ken and Nedra Bullock Keller Scholarship

INTERNSHIPS

2018	Geoscientist-In-The-Park, Mount Rainier National Park
2017	JE Fuller Hydrology and Geomorphology
2015	Space Science Institute

TEACHING AND ADVISING

TEACHING ASSISTANTSHIPS

2021, 2022	Intro to Geology I & II + Labs (online), Arizona State University
2017, 2018, 2021	Water Planet, Arizona State University
2017	Introduction to Exploration, Arizona State University
2016	Intro to Geophysics, University of Utah

UNDERGRADUATE ADVISING AND MENTORSHIPS

- Directed design of Smart Cobble (sediment embedded with a microcontroller) for detection of sediment entrainment.
- Mentored field work analyzing sediment mobility on tributaries of the Verde River, AZ.
- Advised two National Science Foundation Graduate Fellowship Application.

GRADUATE ADVISING AND MENTORSHIPS

- Guiding two master theses on modeling impact of forest thinning on mountainous watersheds.
- Working with PhD student in incorporating daily remote sensing snow cover products to test and inform hydrological modeling of mountainous watersheds.

PUBLIC OUTREACH

2023	Open house event, School of Sustainable Engineering and the Built Environment, Arizona State University
2019	Open house event, School of Earth and Space Exploration, Arizona State University
2018	Science talk and training, Limahuli Gardens, HI
2016	Science guest at Mountain Pointe Highschool, AZ
2014	Science guest at Dilworth Elementary, UT
2014	KSL TV News interview on the Bonneville Salt Flats, SLC, UT