SAM ANDERSON

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Published geologist and hydrologist with 8+ years of diverse professional experience designing technical projects, supervising a team of employees, writing grants, managing resources, interpreting remotely sensed data, and communicating results at professional conferences using advanced data visualization techniques. Expert field scientist who has implemented field campaigns in Kenya, remote parts of the Sonoran Desert, and in a variety of places across North America. Adept at using python to data mine and build numerical models to interpret big data. Proficient at collaborating with students, scientists, and stakeholders using Git and Jupyterhub to create a variety of deliverables including relevant academic research, tutorials for students and potential collaborators, and business recommendations for clients.

EXPERIENCE

- **Hydrologist**, UNESCO, January 2023 – Present
  Work on developing groundwater maps, early warning flood detection systems, and recommending locations to construct both flood prevention and groundwater recharge infrastructure. I work collaboratively within the United Nations system in Nairobi, and with officials from governments in East Africa, universities, NGOs, and private companies.
- **Adjunct Faculty**, Tulane University, August 2021 – May 2024
  Designed curriculum for and taught surface water hydrology courses. Collaborated with other faculty and graduate students to create and grade labs, assignments, and exams.
- **Researcher**, Tulane University, August 2017 – May 2024
  Part of a team which built python models used to simulate landscape change spatially and temporally. Collected big data sets from drone missions and strenuous field campaigns in remote parts of the Sonoran Desert to generate novel science. using QGIS, Agisoft, image analysis tools in python, and ArcPRO software. Used data visualization and academic writing techniques to create published academic research. Mentored and managed six employees with various parts of my research and collaborated with them on their own projects.
- **Scientist**, UN-IGRAC, January 2021 – January 2022
  Developed a methodology (described here https://www.un-igrac.org/special-project/groundwater-refugees) which is used to rapidly determine locations to create emergency UNHCR refugee camps near viable ground water sources. Used MATLAB tools and QGIS to interpret large spatial data sets including elevation maps, population data, image classification, and climate data. Created a pilot project demonstrating our methodology to communicate our scientific findings to Stakeholders and decision makers in different governments, ECOWAS (Economic Community of West African States), and the United Nations.
- **Hydrologist and Applied Mathematician**, BESST Inc., August 2021 – Present
  Utilized technical knowledge to characterize fluid flow and to determine the source of contaminants within a well. Justified hypotheses regarding location of contaminants in the subsurface using a variety of statistical techniques. Collaborated with clients to produce deliverables which feature interpretation of data and recommendations based on analysis. Managed teams of 1 to 2 employees.
- **Science Teacher,** Utopya School, January 2016 – June 2017
  Taught eighth grade for the Utopya Primary school and preschool for the Small Hands Institute in Istanbul, Turkey.

EDUCATION

- Tulane University, PhD, Earth and Environmental Science, December 2023
- Hydrologic Sensitivity Analysis in Python, Community Surface Dynamics Modeling System, 2017
- River Engineering and Modeling, The Army Corps of Engineers, 2017
- University of California Santa Cruz, B.S. Environmental Geology, Cum Laude, 2016
- City College of San Francisco, A.S. Applied Mathematics and Statistics, 2015

SKILLS

- Programming: Python, R, MATLAB, ArcPy, Git, JupyterLab, and image analysis using python.
- Software: QGIS, ArcPRO, Agisoft Photoscan, and Adobe Illustrator.
- Other: Data visualization, Drone operation, field work, grant and academic writing, and project design.

PUBLICATIONS, FUNDED GRANTS, RECOGNITION, AND VOLUNTEER WORK

- **Anderson, S.,** Gasparini, N., and Johnson, J.: Building a bimodal landscape: bedrock lithology and bed thickness controls on the morphology of Last Chance Canyon, New Mexico, USA, Earth Surf. Dynam., 11, 995–1011, https://doi.org/10.5194/esurf-11-995-2023, 2023

- **Non-Academic Research Internship for Graduate Students,** National Science Foundation, 2022, A grant which I used to work with UNESCO on hydrology projects based out of Nairobi, $55,000.
- **Science Instructor** for BATS and GIST, New Orleans, 2017 – 2022, I teach computer classes at a STEM program for kids.
- I received the **AGU Young Researcher Spotlight,** in September 2019, (https://connect.agu.org/epsp/spotlight/sept-2019).
- **Collaborative Research grant**, 2019, National Science Foundation (award numbers 1918459 and 1918351): Reading lithology from topography: How rock properties influence landscape form and evolution in the Guadalupe Mountains, $196,600, https://www.nsf.gov/awardsearch/showAward?AWD_ID=1918459&HistoricalAwards=false
- **Primelab grant,** Purdue University, 2018: To process field samples using a mass spectrometer, $3700.
- **Newcomb grant,** Tulane University, 2017: Used for fieldwork in southern New Mexico, $3000.
- I volunteered as an **English Instructor** at Mudfak**,** a community center for Kurdish and Syrian refugees in Istanbul, Turkey, January 2016 to June 2017.
- I volunteered as an **Art Instructor** at a high school in Bucaramanga, Colombia**,** in 2013.