Sofia Ingersoll

/soF-AYA Ing-er-saul /

Sofia.Ingersoll@Outlook.com|Website|Portfolio|GitHub|LinkedIn

EDUCATION

Master of Environmental Data Science (June 2024)
Bren School of Environmental Science & Management – University of California, Santa Barbara ("UCSB")
Leadership: *Class Co-Chair; Dean's Advisory Committee, Representative; BSLC, Representative*
Selected Courses: Environmental Policy Evaluation, CEQA/NEPA Workshop, Statistics for Environmental Data Science, Modeling Environmental Systems, Machine Learning in Environmental Science, Working with Environmental Datasets, Geospatial Analysis and Remote Sensing, Databases and Database Management, Data Visualization and Communication, Analytical Workflows and Scientific Reproducibility, Ethics & Bias in Environmental Data Science

Bachelor of Science, Chemistry (June 2023)
Earl Warren College – University of California, San Diego ("UCSD")
Certification: *American Chemical Society ("ACS") Certification*
Selected Courses: Statistical Thermodynamics I & II, Differential Equations, Linear Algebra, Calculus I, II/Analytical Geometry, & III, Calculus-Based Prob & Stats, Data Ethics, Analytical Chemistry I & II, Organic Chemistry I, II, & III, Environmental Chemistry I & II

Associate of Science, Mathematics, Physics, Natural Science, & Chemistry (May 2021)
Moorpark College – Moorpark, CA
Leadership: *Women in Engineering, Mathematics, & Science, Treasurer (2020–2021)*

PROFESSIONAL EXPERIENCE

Project Lead & Geospatial Data Analyst for San Bernardino Wildland Fires Project (Expected: 1/25–4/25)
NASA DEVELOP Analytical Mechanics Associate – Jet Propulsion Laboratory, Pasadena, CA
- Contribute to the project by analyzing ECOTRESS and EMIT satellite data to assess the efficacy of prescribed burns and evaluate levels of PM2.5.
- Act as the primary point of contact, communicate findings, produce public facing science communication documents such as, but not limited to, white paper(s), policy suggestion(s), and presentations.

Environmental Data Scientist (10/23–10/24)
The 2035 Initiative, UCSB – Santa Barbara, CA (*remote*)
Repository: **https://github.com/The2035Initiative** [R, Python, QGIS, HTML, JS, CSS, SCSS]
- Compiled and synthesized datasets, conducted literature reviews, trouble-shot and optimized workflows, generate surveying methods, interactive maps, and other informative data visualizations. [R, Python, QGIS]

- Interpreted survey response trends to evaluate the adaptability and impact of policy suggestions. Collaborated with interdisciplinary teams to use this information to devise strategic policy suggestions and solutions which reflect the needs and desires of residents.

Campaign Creative Director (9/21–11/22)
Helen Eloyan for Ventura's City Council District 1 – Ventura, CA (*remote*)
- Condensed and adapted high level writing materials provided by the candidate to be more impactful and palatable for the public. Attended City Council and Community Council meetings to become familiar with issues of high interest. Collected, organized, and strategized an effective layout of the content for the campaign website.
- Managed the creative design team during construction of the campaign website. Led communication, provided content material, established, and maintained a realistic timeline for the project seeing it to completion.

Investment Specialist – **Director of Marketing & Special Events** (6/19–8/21)
Keller Williams Realty, Inc. Partnered with Big H Homes – Westlake, CA (*hybrid*)
- Evaluated demographic engagement with promotions, conducted cost-benefit analyses for marketing strategies, enhanced resource allocations by guiding investment decisions. Managed social media platforms, created marketing, and educational materials, guaranteeing consistent branding and legal compliancy. Coordinated collaboration events with stakeholders to promote camaraderie.

Lead STEM Tutor & Mentor (8/20–1/22)
Moorpark College Tutoring & Learning Center ("TLC") – Moorpark, CA (*hybrid*)
- Mentored a variety of interdisciplinary STEM students, clearly defined work to support students' acquirement of specific academic skills, promoted academic achievement, and participation. Oversaw the virtual tutoring center and connected students with appropriate tutors. Advised and trouble-shot particularly difficult questions when tutors would get stuck.

RESEARCH EXPERIENCE

GIS & Remote Sensing Energy Analyst (6/24–10/24)
California Climate Action: CA Electrification Equitable Grid Modeling Project
Affiliations: The 2035 Initiative & California Climate Action ("CCA")
Advisors: Dr. Ranjit Deshmukh, Dr. Grace Wu, Dr. Matto Mildenberger
Repository: **https://github.com/The2035Initiative/cca_grid_modeling_project** [R, Python, QGIS]
- Supported project efforts by generating map visualizations and a list of census tracts identified as disadvantaged communities in CA to survey. Compiled relevant energy, building, and environmental justice datasets to aid in the development of an equitable electrical grid model for CA.
- Networked with the state's major utility providers to make connections and gain data access to internal distribution level data. Contacted large private companies, such as Zillow, to arrange private data usage agreements.

Technical Consultant (2/24–9/24)

10K Oil Company Disclosure Web Scraping Project

Affiliations: The 2035 Initiative & The Energy Governance and Political Economy ("EGAPE") UC Santa Barbara
Advisors: Dr. Paasha Mahdavi, Ph.D. Candidate Denis Lomov

- Identified and implemented web scraping solutions for extracting oil company disclosure data from SEC 10-K filings, resulting in a comprehensive dataset for LLM analysis using ClimateBert. [Python, HTML]

GIS & Remote Sensing Surveying Analyst (12/23–6/24)

Global Climate Adaption Observatory Project

Affiliation: The 2035 Initiative
Advisors: Dr. Mark Buntaine, Dr. Matto Mildenberger, Ph.D. Candidate Emma Franzblau

- Utilized GIS techniques and satellite data to identify global regions with high population density at risk of flood exposure. Tested the accuracy of my reproducible workflow by analyzing survey response data for the varying regions interviewed through map visualizations and statistical summary reports. [R]

Mentor & Technical Consultant (2/24–6/24)

Data Science Capstone Project

Affiliations: The 2035 Initiative, UCSB Political Science Department, and UCSB Data Science Department
Co-Advisors: Dr. Matto Mildenberger, Jose Niño

- Provided project management support for web-scraping extraction, data transformation, and automated batch surveying workflows, while promoting open-sourced practices and reproducibility. [Python]

Environmental Data Analyst (12/22–6/23)

Measuring Airborne Toxics and Determining Oceanic Relationships (MATADOR) Project

Affiliations: UC San Diego Department of Chemistry & Biochemistry, Scripps Institute of Oceanography, and U.S. Environmental Protection Agency ("US EPA") – La Jolla, CA
Advisor: Dr. Jonathan Slade

- Extracted, transformed, standardized, analyzed, and loaded local meteorological and hydrological data into project's shared drive. Produced weekly reports evaluating local climate effects on the quality of air, sea water, storm water, and wastewater with respect to their potential impacts on public health. [Excel, IGOR Pro]

SELECTED PROJECTS FROM MASTER IN ENVIRONMENTAL DATA SCIENCE

Master's Capstone Communications Manager & Lead Data Engineer (1/24–6/24)

Understanding the Influence of Parameter Value Uncertainty on Climate Model Output

Affiliations: National Center of Atmospheric Research Climate & Global Dynamics Lab ("NCAR CGD"); Bren School of Environmental Science & Management, UCSB; and National Center for Ecological Analysis & Synthesis ("NCEAS") – Goleta, CA | Blog | GitHub Organization | Data Repository | Description
Advisor: Dr. Daniel Kennedy

- Leveraged high-performance computing (HPC) to create a file processing system to pull user-selected information from a database containing 10 Terabytes of netCDF-4 data files to analyze and display on a containerized web application. Designed data wrangling methods for dimensional reduction; spatial, and temporal manipulations; machine learning analysis; accuracy, and sensitivity testing.
- Led collaborative virtual meetings via Zoom with NCAR CGDL stakeholders from varying locations across the United States to assess the usability of my machine learning emulator throughout its evolution. [Python]
- Established public facing science communication materials such as technical documentation, presentations, data repositories, and a GitHub organization. Refined documentation and presentations to ensure our findings were accessible to a broad audience.

Investigation of the Thomas Fire Impacts in Santa Barbara County, CA (2017 - 2018)
Repository: **https://github.com/saingersoll/Thomas_Fire_Investigation** [Python]
Blog: **https://saingersoll.github.io/posts/2023-11-13-ThomasFire/AQI_False_Color_Img.html**

Spatially Distorted Signaling: How Opinions Against Wind Infrastructure Delay Our Transition to Renewable Energy
Repository: **https://github.com/saingersoll/Spatially-Distorted-Signaling-US-Wind-Infrastructure** [R]
Blog: **https://saingersoll.github.io/posts/2023-12-14_SDS_Wind_Infrastructure/SDS_Wind_Infrastructure.html**

Determining the Effects of Urban Development on Biodiversity Intactness Index in Phoenix, AZ
Repository**: https://github.com/saingersoll/BII-Phoenix** [Python]

LEADERSHIP & ADDITIONAL EXPERIENCE

Dean's Advisory Committee Member – UCSB Bren School, Santa Barbara, CA (8/23-6/24)
Class Co-Chair – UCSB Bren School, Santa Barbara, CA (8/23-6/24)
Bren Student Leadership Collective Member – UCSB Bren School, Santa Barbara, CA (9/23-6/24)
Campaign Creative Director – Helen Eloyan for Ventura's District 1 City Council, Remote (9/21–11/22)
Lead Tutor & Mentor – **Rising Scholars Academy Moorpark College**, Moorpark CA (9/20–1/22)
Treasurer – **Women in Engineering, Math, and Science, Moorpark College**, Moorpark, CA (9/20–5/21)
Math & Science Tutor – **Moorpark College**, Moorpark CA (9/19–1/22)
Event Planning Assistant – **University of San Francisco Law School**, San Francisco, CA (10/18–5/19)

SELECTED WRITING

1. **S. Ingersoll**. "Creating a Web Tool for Climate Scientists" *Bren School of Environmental Science & Management, UC Santa Barbara,* December 2024. **Link to Article**
2. **S. Ingersoll,** H. Childers, and D. Kennedy. "Understanding the Influence of Parameter Value Uncertainty on Climate Model Output: Developing an Interactive Dashboard" *Bren School of Environmental Science & Management, UC Santa Barbara,* October 2023. **Link to proposal**
3. H. Childers, **S. Ingersoll**, and S. Bhattarai "Understanding the Influence of Parameter Value Uncertainty on Climate Model Output: Developing an Interactive Dashboard" *Bren School of Environmental Science & Management, UC Santa Barbara,* June 2024. **Link to technical documentation**
4. **S. Ingersoll**, L. Herschenfeld-Catalán. "Addressing the Critical Barriers When Developing Affordable Housing: Solutions to Improve the Current Approach to Address the Housing Crisis." *Bren School of*

Environmental Science & Management, UC Santa Barbara, December 2023. **Link to Article**
5. **S. Ingersoll**, "Identification Techniques for Carbohydrates Utilizing HPLC-NMR/MS" *UC San Diego, Department of Organic Chemistry*. La Jolla, CA, December 2022.
6. **S. Ingersoll**, "Synthesizing delta-9-trans-Tetrahydracannabinol" *UC San Diego, Department of Organic Chemistry*. La Jolla, CA, May 2022.

PRESENTATIONS & WORKSHOP ATTENDANCE

Presenter, "Understanding the Influence of Parameter Value Uncertainty on Climate Model Output." Master of Environmental Data Science Capstone Faculty Review & Public Presentation. UC Santa Barbara, Bren School of Environmental Science & Management. Santa Barbara, CA, March 2024, May 2024. **Link to public presentation**

Presenter, "Identification Techniques for Carbohydrates Utilizing HPLC-NMR/MS." Literature Review Poster Symposium. UC San Diego, Department of Organic Chemistry. La Jolla, CA, December 2022.

Presenter, "Synthesizing delta-9-trans-Tetrahydracannabinol" Literature Review Poster Symposium. UC San Diego, Department of Organic Chemistry. La Jolla, CA, May 2022.

Workshop Participant, "CEQA / NEPA Workshop." Maggie Hall, The Environmental Defense Center, UC Santa Barbara, Bren School of Environmental Science & Management. Santa Barbara, CA, October 2023.

Workshop Participant, "Science Communication / Writing Blog Posts" Jess Tran, UC Santa Barbara, Bren School of Environmental Science & Management. Santa Barbara, CA, November 2024.

Workshop Participant, "Intro into Shiny – Building Reactive Apps & Dashboards." Sam Csik, UC Santa Barbara, Bren School of Environmental Science & Management. Santa Barbara, CA, February 2024.

SKILLS

Programming: R (proficient), Python (proficient), SQL (confident), Git (confident), Microsoft Excel (proficient), QGIS (familiar), HTML (familiar), JS (familiar), CSS (familiar), CSCC (familiar)
Software: GitHub, Slack, Microsoft Office Suite, Zotero, Teams, Zoom, ArcGIS, IGOR Pro