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)
Capstone Project: Understanding the Influence of Parameter Value Uncertainty on Climate Model Output

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)
Selected Courses: Quantum Mechanics, 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

PROFESSIONAL EXPERIENCE

NASA DEVELOP Analytical Mechanics Associate – Jet Propulsion Laboratory, Pasadena, CA
Project Lead & Geospatial Data Analyst for San Bernardino Wildland Fires Project (Expected: 1/25–4/25)

- Contribute to project by analyzing ECOTRESS and EMIT satellite data to assess the efficacy of prescribed burns.
- Act as the primary point of contact, communicate findings, produce public facing documents such as, but not limited to, white paper(s), policy suggestion(s), and presentations.

The 2035 Initiative, UCSB – Santa Barbara, CA
Environmental Data Scientist (10/23–10/24)

Repository: **https://github.com/The2035Initiative** [R, Python, QGIS, HTML, QGIS]

- Creatively strategized reproducible GIS workflows and troubleshooting solutions with detailed documentation to aid interdisciplinary team members, enhanced efficiency, and encouraged collaboration.
- Simultaneously contributed to a myriad of projects by conducting literature reviews, compiling, and organizing data & metadata, providing technical guidance, developing surveying methods, maps, and other informative data visualizations.

Keller Williams Realty, Inc. Partnered with Big H Homes – Westlake, CA
Investment Specialist – Director of Marketing & Special Events (6/19–8/21) [Excel]

- Coordinated collaboration events with market center vendors and partners to promote camaraderie amongst stakeholders, ensure team alignment of strategic goals, and guarantee regulatory compliance is being met across the board.

- Conducted cost-benefit analyses for marketing strategies, optimizing resource allocation and guiding investment decisions. Managed social media platforms, created marketing and educational material with consistent branding, evaluated demographic engagement with promotions.

RESEARCH EXPERIENCE

California Climate Action: CA Electrification Equitable Grid Modeling Project (6/24–10/24)
GIS & Remote Sensing Energy Analyst
Affiliation: The 2035 Initiative & California Climate Action
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.

10K Oil Company Disclosure Web Scraping Project (2/24–9/24)
Technical Consultant
Affiliation: The 2035 Initiative & The Energy Governance and Political Economy (EGAPE) UCSB
Advisors: r. Paasha Mahdavi, Ph.D. Candidate Denis Lomov

- Developed 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]

Global Climate Adaption Observatory Project (12/23–6/24)
GIS & Remote Sensing Surveying Analyst
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]

Data Science Capstone Project (2/24–6/24)
Mentor & Technical Consultant
Affiliation: The 2035 Initiative, UCSB Political Science Department, & 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]

Measuring Airborne Toxics and Determining Oceanic Relationships (MATADOR) Project (12/22–6/23)
Environmental Data Analyst

Affiliation: Department of Analytical & Atmospheric Chemistry, UCSD – La Jolla, CA
Advisor: Dr. Jonathan Slade

- Supported an EPA-funded field study by extracting and ARM: Aerosol Observing System Surface Meteorology ("AOSMET") and Coastal Data Information Program ("CDIP") data to produce weekly comprehensive reports evaluating local seasonality effects on aerosol particle properties and public health.

SELECTED PROJECTS FROM MASTER IN ENVIRONMENTAL DATA SCIENCE

Understanding the Influence of Parameter Value Uncertainty on Climate Model Output
Lead Data Engineer & Communications Manager (1/24–6/24)
Client: National Center of Atmospheric Research (NCAR); Dr. Daniel Kennedy
Advisor: Dr. Daniel Kennedy

Repository: **https://github.com/GaiaFuture/CLM5_PPE_Emulator** [Python]

- Co-authored the proposal for a Master's Capstone Project at the Bren School of Environmental Science & Management.
- Designed, built, documented, and optimized a high-performance computing (HPC) workflow that transforms clusters of netCDF-4 files from Community Land Model (CLM) simulations via dimensional reduction, manipulation, machine learning analysis, accuracy, and sensitivity testing, and archives the models generated using an interactive dashboard.
- Facilitated client engagement via meetings and coordinated tasks among team members, ensuring project milestones are met with precision. 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,** 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**
2. 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**
3. **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**
4. **S. Ingersoll**, "Identification Techniques for Carbohydrates Utilizing HPLC-NMR/MS" *UC San Diego, Department of Organic Chemistry*. La Jolla, CA, December 2022.
5. **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