Guillermo Escobar

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EDUCATION

Master of Environmental Data Science and Management, 3.81 GPA (June 2023)
Bren School of Environmental Science & Management – University of California, Santa Barbara (UCSB)
Highlighted Coursework: Machine Learning in Environmental Science, Databases and Data Management, Modeling Environmental Systems, Statistics for Environmental Data Science

Bachelor of Arts in Geography, 3.52 GPA (June 2022) **(UCSB)**

Bachelor of Science in Earth Science, 3.52 GPA (June 2022) **(UCSB)**
Highlighted Coursework: Advanced Remote Sensing, Ocean Remote Sensing, Technical GIS, Field Studies in Geological Methods, Field Hydrology, Introduction to Climate Modeling

Technical Experience

Data Scientist - SIG-NAL (Spatial Informatics Group – Natural Assets Lab), Remote, (10/23 – Present)

- Led design and deployment of a NASA-funded wildfire mitigation toolkit ($171K), developing and integrating 300+ pages of domain guidance, 110 StoryMaps, and interactive ESRI Experiences for community and agency use.
- Rebuilt a legacy environmental modeling system in Python, transforming it into a reliable production framework for wildfire scenario simulations while eliminating $169K in contractor reliance.
- Engineered and deployed pipelines in Python and Google Earth Engine to automate ingestion and preprocessing of satellite imagery and climate datasets at regional-to-national scale, enabling repeatable, production-ready workflows for wildfire and climate resilience analysis.
- Managed geospatial cloud infrastructure and served as ESRI administrator, overseeing user access, content publishing, and creation of public-facing assets to support federal, regional, and local stakeholders.

Air Quality/Google Earth Engine Intern – Universities Space Research Association (USRA), Remote, (08/23-12/23)

- Developed a Google Earth Engine–powered pipeline to preprocess MERRA-2 climate reanalysis and satellite datasets for integration with a pre-trained CNN model predicting PM2.5 air quality.
- Engineered scalable preprocessing scripts for fetching and normalizing geospatial data, improving model input accuracy and supporting real-time predictions in data-limited regions.
- Deployed the pipeline in a Python-based web application on Hugging Face, delivering an interactive, production-ready interface that enhanced data accessibility for researchers and public stakeholders.

Master's Capstone Project - Informing Forest Conservation Regulations in Paraguay (7/22 – 6/23)

Client: Paraguay — National Forestry Institute; UCSB — Dr. Robert Heilmayr | Role: Machine Learning Engineer

- Led development and deployment of a Random Forest model in Python with Earth Engine data inputs to forecast future deforestation patterns, generating pixel-level risk surfaces that supported conservation policy design.
- Built a geospatial simulation tool in R to compare forest protection laws, revealing 3.39M ha difference in preserved forest under alternative regulatory scenarios.
- Delivered results via an interactive Shiny dashboard, enabling policymakers to explore scenarios and strengthen conservation regulations.

SKILLS, AWARDS, & ADDITIONAL EXPERIENCE

Programming: Python, R, SQL, Bash
ML/AI: Deep Learning (PyTorch, Keras, CNNs), Random Forests, Time-Series Modeling, Model Deployment
Geospatial & Remote Sensing: Google Earth Engine, ArcGIS Pro, QGIS, PostGIS, Raster/Vector ETL
Cloud & Systems: Linux/Unix, Docker, AWS (S3, boto), GCP (service accounts, Earth Engine)
Databases: PostgreSQL/PostGIS, SQLite
Other Tools: Git/GitHub, VSCode, Jupyter, RStudio, Quarto
Languages: English, Spanish (fluent)
Clearances: Eligible for U.S. security clearance