# Narjes Mathlouthi

### RESEARCH INTEREST

I am interested in machine learning methods that integrate geospatial and visual data to advance context-aware recommendation systems and computer vision. Building on my expertise in remote sensing and statistical modeling, I focus on representation learning, spatiotemporal anomaly detection, and developing scalable end-to-end machine learning (ML) pipelines. My goal is to translate these techniques into responsible, human-centered AI systems that enhance applications ranging from satellite imagery analysis to personalized visual search, with an emphasis on scalability, equity, and societal impact.

#### **EXPERIENCE**

Planet Archive Intern [ )

*June* 2024 – *January* 2025

Office of Research, UCSB

Santa Barbara, CA (Remote)

- Architected and deployed end-to-end PlanetScope imagery pipelines for UCSB Natural Reserve Sites, enabling streamlined data ingestion.
- Developed and maintained a comprehensive codebase and user documentation to support scalable harvesting workflows.
- Designed and prototyped a Redis and Celery task scheduling workflow to enable future automated continuous image collection.

Machine Learning Intern [

June 2023 – August 2023

National Energy Technology Laboratory (NETL)

Albany, OR

- Developed Bayesian-optimized ML models to predict the coefficient of thermal expansion in high-temperature alloys.
- Curated and pre-processed a comprehensive alloy dataset for model training and validation.
- Presented results and technical recommendations to Department of Energy experts.

Conservation Analysis Intern [

*June* 2022 – *August* 2022

Santa Barbara, CA

- Conservation International
   Conducted cost–benefit analysis for Fiji's tuna industry improvement projects
- Designed a schematic to map the tuna supply chain
- Developed an evaluation framework to measure project impact

Global Fund for Women

San Francisco, CA

- Managed over 350 international grants, enhancing compliance and workflow
- Co-designed Salesforce app for mass communications with grantees and donors
- Led implementation of best practices in grantmaking and safeguarding

Grants Coordinator [#]

August 2018 – November 2020

San Francisco, CA

- Global Fund for WomenBuilt and maintained dashboards and reports for proposal tracking
- Ensured data integrity by optimizing Salesforce workflows
- · Liaised with program teams and donors to support strategic funding

# **EDUCATION**

### • University of California, Santa Barbara

Expected June 2028 Santa Barbara, CA

Ph.D. in Geography

• Graduate-level research in remote sensing, spatial statistics, and climate-agriculture interactions

# • University of California, Santa Barbara

Expected June 2025

M.S. in Probability and Statistics

Santa Barbara, CA

o Coursework: Measure Theory, Stochastic Processes, Advanced Statistical Modeling

## • Bren School, University of California, Santa Barbara

June 2023

Master of Environmental Science and Management (M.E.S.M.)

Santa Barbara, CA

Group Project: Developed a Sustainability Index for the South Pacific Tuna Fishery

## • University of California, Berkeley

December 2016

B.S. in Environmental Economics & Policy

Berkeley, CA

Undergraduate coursework in economics, public policy, and environmental management

## RESEARCH EXPERIENCE

## • Crop Anomaly Detection in Malawi using Remote Sensing

University of California, Santa Barbara

September 2023 - Present

- Developed Google Earth Engine pipelines to monitor agricultural anomalies in Malawi using Sentinel-2 and Landsat imagery.
- Applied spatiotemporal vegetation indices (NDVI, EVI) to detect drought- and flood-induced crop stress patterns.
- Designed and implemented segmentation algorithms to identify and delineate crop areas within satellite imagery.
- · Conducted anomaly detection analysis to assess compound climate impacts on agricultural production.

# • Yield Impact Modeling for Sub-Saharan Africa

September 2023 - Present

Climate Hazards Center, UCSB

- Collaborated with the Climate Hazards Center to integrate HarvestStat and CAPE models for yield impact prediction across sub-Saharan Africa.
- Analyzed historical harvest data, soil moisture indices, and climate drivers to refine agricultural yield forecasting.
- Evaluated model outputs for improving early warning systems and decision support tools for agricultural resilience.

## LEADERSHIP EXPERIENCE

## UCGIS Week Program Coordinator

June 2023 – November 2024

University Consortium for Geographic Information Science (UCGIS)



- Spearheaded coordination and planning of the UCGIS Week annual program
- Led content review, keynote and panelist invitations, and event promotion strategy
- Ensured smooth execution of virtual logistics and managed online engagement

## VOLUNTEER EXPERIENCE

## Marketing Analyst Volunteer Women4Good, San Francisco, CA

*June* 2021 – August 2021



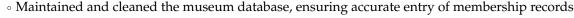
- Increased IGNITE National's Instagram daily engagement from 2.5% to 5% through A/B testing
- o Conducted historical analysis of Instagram engagement data using Python
- · Advised the communications team with recommendations for a marketing campaign to promote IGNITE's fellowship program

## • Data Defender Volunteer

July 2020 - June 2021

Museum of African Diaspora (MoAD), San Francisco, CA

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- Collected and designed surveys to re-engage inactive donors and members
- Upheld data privacy practices in handling user and donor information

## PROFESSIONAL MEMBERSHIPS

American Statistical Association, Active Member

Expires: April 2026

## **CERTIFICATIONS**

NASA ARSET: Drought Monitoring, Prediction, and Projection using NASA Earth System Data

August 2024

NASA ARSET: Applications of Carbon Dioxide Measurements for Climate-Related Studies

July 2024

NASA ARSET: Urban Heat Islands, Remote Sensing

August 2022 July 2022

• Remote Sensing: Aquatic Vegetation

· Datacamp: Shell Programming

October 2022

University of Michigan: Python Data Structures

July 2019

## **SKILLS**

- Programming Languages: Python, R, C, JavaScript, SQL
- Web Technologies: HTML, CSS, Quarto, WordPress, GitHub Pages
- Database Systems: BigQuery, PostgreSQL, SQLite
- Data Science & Machine Learning: scikit-learn, pandas, NumPy, TensorFlow, Keras, caret
- Cloud Technologies: Google Cloud Platform (GCS, BigQuery, Dataflow)
- DevOps & Version Control: Git, GitHub, Redis, Celery, Bash
- Specialized Area: Remote Sensing, GIS, NDVI Analysis, Spatial Econometrics
- Mathematical & Statistical Tools: LaTeX, Quarto, Stata, RStudio, Jupyter
- Other Tools & Technologies: ArcGIS, QGIS, Canvas, Zoom, Box
- Research Skills: Time Series Modeling, Causal Inference, Survey Design, Statistical Programming, Data Visualization, Report Writing

## **ADDITIONAL INFORMATION**

Languages: French (Native), Arabic (Native), English (Fluent), Spanish (Beginner)
Interests: Remote Sensing, Climate Resilience, Agricultural Innovation, Artificial Intelligence, Machine Learning, Large Language Models (LLMs), Statistical Modeling