Matthew Duyst

REMOTE RESEARCHER + DATA ANALYST

Contact

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(559) 308-0931

www.mappingwithmatt.com

Expertise

ML Algorithms	Data Visualization
DL Architecture	Statistical Modeling
GIS	Python
Remote Sensing	Predictive Analytics
Time Series Analysis	Accuracy Assessments
Quantitative Research	Google Earth Engine

Skills

NumPy	Pandas	Matplotlib	Scikit-Learn
ArcGIS	Keras	Statsmodel	FB Prophet
SQL (MySQL, Postgres)	Tensorflow	ENVI	
Linear/Logistic Regression	RF, Xgboost, SVM		
Clustering/Classification	Jupyter Notebook		

Awards & Honors

Yale Merit Research Scholarship
Research Fellow (2022 - 2023)
Awarded: $90,000

Hixon Center of Urban Ecology
Research Fellow (2022)
Awarded: $7,000

Los Angeles Geospatial Summit
Guest Speaker (2019)
Awarded: $1,500

Education

Yale University
Candidate for Master of Environmental Science — 2023

University of California, Los Angeles
Bachelor of Arts — 2018
Majors: Geography and Environmental Studies
Minors: English and Geographic Information Systems

Experience

Yale University | The Lee Lab
Research Assistant — 2021 - Present

- Tracking urbanization along the Yangtze River Delta through Global Artificial Impervious Area (GAIA) data using 30m Landsat satellite images.
- Applying supervised ML techniques for automated pixel classification.
- Developing method for detecting paddied rice fields by improving a phenology-and-pixel-based mapping (PPPM) algorithm using harmonic fitting and first derivative (FD) analysis.
- Assessing regional atmospheric Methane patterns through Sentinel-5P satellite imagery and performing vertical column conversion ratio to quantify total emissions.

University of Minnesota, Twin Cities | U.S. Department of Energy
Visiting Scholar Research Intern — Summer 2022

- Created various forecasting models of Methane flux measurements with simultaneous observations of CO_2 flux values, precipitation values, and temperature values over Bog Lake Fen, MN.
- Curated multivariate time series analyses to assess influence of seasonality and capture trends in emission patterns from 2009 - 2022.
- Built ML Regression model that captured 87% variability in Methane flux values.
- Tested machine learning techniques (Microsoft LGBM, Facebook Prophet, SARIMAX, RF, SVM, Xgboost) and assessed models with highest accuracy.
- Forecasted data 52 weeks into future by optimizing baseline model to incorporate seasonality (lags) and used a weighted average to isolate lowest test level MAPE.

Cydcor LLC.
Territory Systems Analyst I Salesforce Administrator — 2018 - 2020

- Calculated regions generating highest success of sales by combining census with internal sales data.
- Developed mapping scenarios of addressable markets for Amazon's Pilot Program, Key For Business.
- Performed batch geocoding using Google API for lead (lat/lon) accuracy reports.
- Accelerated data import process (lead integration) through SQL updates and automation of lead management database.
- Oversaw all Salesforce functionality and CRM behaviors, including system integration of quarterly releases.
- Built test environments for internal users to familiarize themselves with Salesforce.
- Fully integrated Salesforce Einstein AI for predictive modeling and generation of lead scoring.
- Delivered exception reporting and expectations to internal and external channels: Executive Board, Campaign Management, Sales Offices, API Vendors (Mulesoft) and client-facing representatives.