MATTHEW DUYST

REMOTE SCIENTIST & DATA ANALYST

CONTACT

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EXPERTISE

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

SKILLS

- NumPy
- Pandas
- Matplotlib
- Scikit-Learn
- Pytorch, Keras
- Tensorflow
- ENVI
- ArcGIS
- Statsmodel
- RF, Xgboost, SVM
- DeepLabV3+
- Regression

AWARDS & HONORS

YALE MERIT RESEARCH SCHOLARSHIP

Research Fellow (2021 - 2023)
Awarded: $90,000

HIXON CENTER OF URBAN ECOLOGY

Research Fellow (2022)
Awarded: $7,000

YSE DEAN'S SCHOLARSHIP

Dean's Scholar (2023)
Awarded: $2,300

GLOBAL STOCKTAKE CLIMATE DATATHON

Honorable Mention (2022)
Awarded: $1,000

LOS ANGELES GEOSPATIAL SUMMIT

Guest Speaker (2019)

EDUCATION

YALE UNIVERSITY

Masters of Environmental Science — 2023

UNIVERSITY OF CALIFORNIA, LOS ANGELES

Bachelor of Arts — 2018

Majors: Geography & Environmental Studies
Minors: Geographic Information Systems & English

EXPERIENCE

YALE UNIVERSITY | THE LEE LAB — 2021 - 2023
RESEARCHER

- Quantified urban expansion along the Yangtze River Delta through Global Artificial Impervious Area (GAIA) data using 30m Landsat satellite images.
- Applied supervised ML techniques for automated pixel classification.
- Developed method for detecting rice fields along the Yangtze River Delta using a phenology-and-pixel-based mapping (PPPM) algorithm.
- Assessed regional atmospheric Methane patterns through Sentinel-5P satellite imagery.
- Built a CNN using DeepLabV3+ Architecture to predict historical Methane emission patterns based on recorded urban extents and paddied rice extents.

UNIVERSITY OF MINNESOTA, TWIN CITIES — 2022
VISITING SCHOLAR | U.S. DEPARTMENT OF ENERGY

- Created 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 regression model that captured 87% variability in Methane flux values.
- Tested ML techniques (Microsoft LGBM, FB 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 using weighted averages to isolate lowest test level MAPE.

CYDCOR LLC. — 2018 - 2020
TERRITORY SYSTEMS ANALYST | SALESFORCE ADMIN.

- Calculated regions generating highest success of sales by combining census and 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.
- Delivered exception reporting and expectations to internal and external channels: Executive Board, Campaign Management, Sales Offices, API Vendors (Mulesoft), and client-facing reps.