

MATT EDRICH

ENVIRONMENTAL DATA SCIENTIST

Experience

Metis Data Scientist

Remote
Sept. 2021 to Current

Providing TA services after completing a 28-week immersive data science bootcamp emphasizing practical skills in machine learning, data engineering and analytics, natural language processing, and business communications. Notable projects from the bootcamp include:

Web App To Discover Music Through Genre Adjacency

- Used Spotify's API to create a MongoDB database mapping musicians to their performed musical genres.
- Developed an algorithm to establish genre profiles for musicians and determine cosine similarity to user input with Sklearn.
- Deployed a Streamlit web app to facilitate end-user interaction as an alternative means for music discovery.

Captioning Images For Blind Users

- Created a deep learning model using a convoluted neural network to apply computer vision to >30,000 images taken by blind users.
- Paired the model from above with a second deep learning model leveraging a recursive neural network with NLP techniques to generate captions based on image content, achieving a contextual accuracy deemed useful by a small sample of end-user tests.

Classifying Mushroom Toxicity

- Created a classification model to determine the edibility of common mushrooms of the *Agaricus* genus.
- Used ensembling techniques with Random Forest, Decision Trees, k-Nearest Neighbors, and XGBoost to build predictive models.
- Investigated SHAP values to assist in feature selection and optimize hyperparameters, boosting model accuracy to 96%.

Pricing Campervans With Regression Analysis

- Collected price and feature data from Vanlifertrader.com using a custom webscraping script featuring BeautifulSoup and Selenium.
- Applied rigorous regularization (Ridge, LASSO) techniques alongside detailed feature engineering to create a model with >70% accuracy.
- Identified high-value features of campervans for the purposes of effectively marketing a fairly priced product as a private seller.

CACI, Inc. Associate Geospatial Analyst

Fort Collins, CO
July 2021 to Current

- Reviewed and updated spatial data for various parts of the globe for the NGA's Janus Geography project using ESRI ArcMap.
- Performed quality control and quality assurance for outgoing cartographic projects.
- Assisted in the development of proprietary machine learning tools for in-house GIS applications.

Natural Habitat Adventures Interpretative Naturalist

Boulder, CO
May 2018 to July 2021

- Conducted multiday safaris of various US bioregions (Mountain West and Desert Southwest).
- Created custom, educational narratives of landscapes, including complex ecological interactions, biology, geology, natural history, and culture.
- Managed small groups of clients with widely ranging demographics, interests, abilities, and perspectives.

Colorado State University Geospatial Centroid Geospatial Intern

Fort Collins, CO
Jan. 2016 to May 2018

- Investigated western wildfire regimes and biodiversity with extensive timeseries and landcover analyses.
- Provided technical GIS support for non-technical university clients.

Contact

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Skills

PYTHON TOOLS & LIBRARIES: NumPy, Pandas, Sklearn, Spark, Docker, BeautifulSoup, Selenium, AstroPy

SUPERVISED MACHINE LEARNING:

Linear & Logistic Regression, CART, Ensembling Techniques

UNSUPERVISED MACHINE LEARNING:

Dimensionality Reduction, PCA, K-means, DBScan

NATURAL LANGUAGE PROCESSING: NLTK,

Topic Modeling (LSA/NMF/LDA), Sentiment Analysis (VADER), Collaborative Filtering, TF-IDF

DEEP LEARNING: Keras

DATABASES: SQL, mongoDB, ArcGIS

DATA VISUALIZATION: Seaborn, Matplotlib, Plotly, Tableau, Geopandas

OTHER: Bash/CLI, Git, Streamlit, Flask, HTML, AWS, Linux, macOS, Windows

Education

Colorado State University

BS Ecosystem Science & Sustainability 2018

I conceived and executed independent GIS-based research that I presented at the 2018 National Conference for Undergraduate Research. Topic: 'Using GIS To Assess How Forest Health Treatments In The San Juan National Forest Impact Biodiversity'.

Memberships

Xi Sigma Pi · Forestry Honors Society May 2018 to Current

National Society of Collegiate Scholars May 2018 to Current

Volunteering

Missing Maps · Volunteer Technician Remote Mar. 2016 to Current

Rocky Mountain Rescue Group · Volunteer Rescuer Colorado Front Range June 2018 to Current