

APRIL WALKER

📍 Fayetteville, AR

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EDUCATION

University of Arkansas

📍 Fayetteville, AR

Master of Science

📅 August 2020

- **Field:** Statistics and Analytics
- **GPA:** 3.8

Bachelor of Science

📅 May 2018

- **Major:** Physics
- **Concentration:** Computational Physics
- **Minor:** Mathematics

WORK EXPERIENCE

Senior Machine Learning Engineer

BlackSky

📅 Apr. 2025 – Present

📍 Herndon, VA (Remote)

- Focused model fine-tuning to improve detection accuracy within specific geographic regions of interest, improving performance in targeted monitoring tasks while balancing model specialization with generalization to ensure robustness and avoid overfitting.
- Collaborated with Data and MLOps teams to improve inference workflows and input handling, supporting both production and experimental model development, and creating cross-team documentation for testing processes.
- Built an internal leaderboard app using ClearML and Streamlit to compare model performance, with automated guardrails to ensure models meet deployment criteria, easing evaluation and experimentation.

Machine Learning Engineer

BlackSky

📅 Apr. 2022 – Apr. 2025

- Enhanced training pipeline with custom sampling strategies for out-of-domain data using PyTorch, increasing coverage of rare object classes, and increasing their evaluation metrics.
- Applied model compression and knowledge distillation to reduce model size and inference time, improving the performance of long-standing production models by up to 5%.
- Built and evaluated AI solutions for classification and semantic segmentation of satellite data, consistently exceeding client-defined metrics in production settings.
- Developed first production model for new object class offering, combining experimental techniques to exceed proof-of-concept benchmarks.
- Authored extensive documentation and presented experimental findings clearly to technical and non-technical stakeholders, ensuring transparency and reproducibility.
- Collaborated with data engineers and MLOps specialists to ensure database schema changes were properly reflected in training pipelines, maintaining data consistency and integrity.

Jr. Machine Learning Engineer

📅 Sept. 2020 - Apr. 2022

- Built a hybrid KNN classifier that combines CNN embeddings with geometric features and uncertainty estimation, resulting in a performance improvement of nearly 2× and a high-value contract win.
- Delivered near-real-time object detection and segmentation models using CNN architectures (YOLO, ResNet) in TensorFlow, deployed via a cloud-based production pipeline.
- Developed early-warning models integrating computer vision and compartmental epidemic simulations, conducting spatial risk analyses using satellite imagery.
- Conducted spatial risk analyses and volumetric assessments using satellite imagery for supply chain monitoring project.
- Produced detailed time series visualizations and analyses, effectively identifying trends and anomalies in complex geospatial data streams.

Machine Learning Consultant

Nectar Labs

📅 Dec. 2019 – Sept. 2020

📍 Fayetteville, AR (Remote)

- Evaluated client needs and developed proof-of-concept ML models tailored to small-scale production environments.
- Communicated AI/ML solution tradeoffs, feasibility, and business value to stakeholders with varying technical backgrounds.

RESEARCH EXPERIENCE

University of Arkansas

📅 Oct. 2018 – Aug. 2019

Dr. Cheng's Climate Science Lab

- Developed Bayesian non-stationary extreme value models to assess the impact of urbanization on extreme heat events, utilizing R for statistical modeling and data analysis.
- Focused on incorporating spatial and temporal predictors to assess urban heat risk, with early-stage modeling and analysis conducted in R.

📅 Aug. 2016 – Dec. 2018

Dr. Lehmer's Astrophysics Lab

- Conducted research on X-ray binary formation and evolution, employing Python, Bash, Tcl, and R alongside astronomical software (CIAO, XSPEC, DS9) for data processing and visualization.
- Created a catalogue of simulated spectral data fitted to power-law models, facilitating the identification of distinguishing features in spectral observations.

Both projects are featured on my website at aprilwalker.io/research.

INTERSHIPS

Data Science Intern

The Hartford

📅 May 2019 – Aug. 2019

📍 Hartford, CT

- Evaluated the predictive power of third-party spatial datasets for home insurance risk modeling, using logistic regression and gradient boosting to quantify location-specific risk factors.
- Built and compared pipelines in R and Python for dimension reduction, feature selection, and classification using PySpark, H2O.ai, and Scikit-learn.
- Managed large datasets on Hadoop and AWS-based infrastructure; developed data workflows in Spark and Jupyter.
- Presented findings to teammates and led casual workshops to explore data science concepts together.
- Collaborated in Agile development teams, using Git and Bash for version control and workflow automation.

Big Data Engineer Intern

L3-ComCept

📅 Jun. 2017 – Aug. 2017

📍 Rockwall, TX

- Developed an Apache Maven library for geospatial tagging using Java and SQLite.
- Integrated a Scala REST API into an existing Java project using the Akka toolkit.

SKILLS

ML Techniques Concepts

Computer Vision, Convolutional Neural Networks (YOLO, ResNet, CenterNet), Time Series Analysis, Anomaly Detection, Model Fine-tuning & Distillation;
Dimensionality Reduction (PCA, UMAP), Clustering (K-Means, DBSCAN), Transformers (ViT, CLIP, LLMs), Boosting, GANs, KNN, Decision Trees

Geospatial Tech

QGIS, Shapely, Rasterio, GDAL, GeoPandas, Fiona, pyproj

Programming & Libraries

Python, R, SQL (MySQL, PostgreSQL), JavaScript, C/C++, Scala;
PyTorch, Scikit-learn, TensorFlow, ClearML (MLOps + experiment tracking), HuggingFace, Streamlit, FastAPI, OpenAI API, Numpy, Pandas, SciPy, Matplotlib

Other Computer Skills

GNU/Linux, Jupyter Notebooks, Bash/Shell, Git, AWS, JSON/Jsonnet, YAML