Dillon Hicks

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Education

UC San Diego *2021-2023*
MS in Machine Learning and Data Science

- **Thesis:** (Remote Sensing of Mangroves using Machine Learning based on Satellite and Aerial Imagery)

UC San Diego *2016-2021*
BS in Electrical Engineering

- Machine Learning and Data Science Depth

Experience

Deep Learning Engineer *Remote*
Trilogy Innovations, Inc. *June 2023 – Present*

- Boosted radio signal classification accuracy by 15% through PyTorch-based CNNs for real-time classification, anomaly detection, and denoising.
- Built an LLM-powered RAG Q&A system (LangChain, AWS RDS with pgvector, Bedrock) enabling natural language queries on structured financial data.
- Developed an automated ETL pipeline (AWS Lambda, Textract, RDS), cutting manual data entry by 90% via computer vision–based document processing.
- Deployed predictive models on NVIDIA edge devices using ONNX, Docker, MLflow, and DVC, ensuring reproducibility and streamlined model management.

Graduate AI Researcher *Remote*
NASA Ames Research Center *Feb 2021 – June 2023*

- Deployed advanced regression models (Keras, TensorFlow, Optuna) for large-scale UAV pathfinding, boosting predictive accuracy.
- Engineered ETL pipelines (Apache Kafka, Xarray, Dask, PostgreSQL) to streamline geospatial data processing, enhancing airspace management.
- Optimized large-scale geospatial data analysis with Apache Spark, accelerating traffic insights.
- Built a containerized C# Unity simulation with a Python backend (NumPy, WebSockets) on AWS (EC2, S3), ensuring robust UAV traffic modeling via automated testing.

Graduate Research Assistant *La Jolla, CA*
Engineers for Exploration - Kastner Research Group *July 2018 – April 2023*

- Led a 10 person data science team collaborating with government and industry partners on mangrove conservation, achieving significant environmental impact.
- Fine-tuned pretrained models and developed custom neural networks with Keras and TensorFlow to achieve 95% accuracy in geospatial image segmentation, informing Jamaican Government carbon policies.
- Built a cloud-based geospatial analytics dashboard (Dash, Plotly, XGBoost, AWS SageMaker, Lambda), enabling real-time monitoring of coastal ecosystem changes.

Software Engineering and Machine Learning Intern *Carlsbad, CA*
Thermo Fisher Scientific *June 2019 – Sept 2019*

- Implemented NLP classification system by fine-tuning BERT using Keras and NLTK, reducing IT email processing time by 53% through AWS Lambda
- Developed sentiment analysis tool using Word2Vec and Scikit-learn to process 1000+ daily social media posts, integrating with SQL Server, providing management with actionable insights on employee satisfaction

Publications

Distributed Decision Contextualization via Machine Learning based Reverse Parametrization 2023

AIAA 2023 SciTech Forum, Primary Author

A 3D Simulation Platform for Decentralized Decision-Making in Advanced Air Mobility 2022

AIAA 2022 Aviation Forum, Coauthor

Mangrove Ecosystem Detection using Mixed-Resolution Imagery with a Hybrid-Convolutional Neural Network 2020

NeurIPS 2020: Tackling Climate Change with Machine Learning, Primary Author

Technologies

Programming: Python, SQL, C++, Java, C#

Machine Learning: PyTorch, TensorFlow, Keras, XGBoost, Scikit-learn, ONNX, MLflow, DVC

LLMs & NLP: LangChain, Hugging Face, NLTK, spaCy

Cloud: AWS (Lambda, SageMaker, EC2, S3, RDS, Bedrock), Google Cloud Platform (Firebase, DocumentAI), Microsoft Azure (VMs, Blob Storage)

Data Science & Engineering: SQL (PostgreSQL, SQLite), Apache Spark, Databricks, Plotly, Dash, Django, NumPy, Matplotlib, Dask, GeoPandas, Xarray

Development Tools: Git, Docker, Linux (Ubuntu, WSL)