Daryl Roberts
Data Science - Machine Learning - Gen AI

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SKILLS

- **Programming Languages:** *Python, SQL*
- **Frameworks:** *Jupyter, TensorFlow, Keras, Scikit-learn, PyTorch, OpenCV, Hugging Face, Pandas, NumPy, Matplotlib, Seaborn, Plotly, Streamlit, Web Scraping / Beautiful Soup, Requests, Docker, Tableau, Flowise, Langchain, Apache Spark (PySpark)*
- **Technologies:** *Deep Learning, Computer Vision, Natural Language Processing, Retrieval Augmented Generation, Weights and Biases, GPU Programming, Neural Networks, Feature Engineering, Statistical Analysis, Pattern Recognition, Data Wrangling, Hyper Parameter Tuning*
- **Additional Relevant Skills:** *Fast Learner, Communication, Problem Solving, Leadership, Resourceful, Critical Thinking, Public Speaking, Project Management, Curious Mindset*

EXPERIENCE

Operations Manager | Hugg and Hall Equipment | Baton Rouge, LA
10/2017 - 02/2024

- Spearheaded comprehensive reforms to revitalize department and repair strained client relationships, resulting in a remarkable 30% year-over-year increase in net profit within my first year.
- Nearly doubled sales for over-the-counter parts customers through implementation of strategic initiatives.
- Restored relationships with high-value clients, including multi million-dollar corporations, fostering trust and loyalty.
- Immersed in understanding market landscape and competitors' portfolios to position the company as a leader in innovation and excellence within our niche.
- Traveled to multiple states across company territory to lead company-wide implementation of the successful branch reforms I incorporated in my own workflow.
- Achieved record-breaking sales of $315k in the first month, followed by a sustained increase to $500k within 90 days, revitalizing a previously underperforming branch.

MILITARY SERVICE

Sergeant | U.S. Marine Corps
05/2014 - 06/2020

- Strategically planned and executed motor transport operations as a Platoon Sergeant, ensuring optimal troop pickups and mission success through meticulous route planning and utilization of maps, grids, and enemy intel.
- Demonstrated continuous learning and adaptability by excelling in diverse roles within the Marine Corps, showcasing a commitment to excellence and a thirst for knowledge essential for staying abreast of cutting-edge technologies and methodologies.
- Led by example, fostering resilience and resourcefulness within the team, and prioritized safety and efficiency in convoy operations, resulting in the successful completion of missions despite adversity.
- Provided career coaching and mentorship to 70+ Marines, including performance reviews, billet assignments for skill development, and individualized career development plans.

EDUCATION

Louisiana State University   *Oct/2023- May/2024*
Powered by Fullstack Academy
Immersive AI & Machine Learning program which utilized active learning to gain proficiency in data technologies and tools including Python, Keras, and TensorFlow, and understanding of machine learning, deep learning, and data science processes.

Zero To Mastery Academy   *Jan/2024 - Apr/2024*
Tensorflow Developer Certificate Bootcamp
Intensive, hands-on bootcamp focused on developing modern deep learning solutions with TensorFlow. Acquired comprehensive skills through practical projects and exercises, including tensor operations, GPU utilization, model optimization, feature extraction, fine-tuning pre-trained models, natural language processing (NLP), word embeddings, and time series forecasting using RNNs and CNNs.

ADDITIONAL TRAINING

The Complete SQL Bootcamp, Udemy <u>Certificate</u> - May 2024
Building Agentic RAG with Llama Index, <u>DeepLearning.AI</u> - May 2024
Python for Computer Vision with OpenCV and Deep Learning, Udemy <u>Certificate</u> - Mar 2024
Machine Learning A-Z, Udemy <u>Certificate</u> - Feb 2024
Deep Learning A-Z, Udemy <u>Certificate</u> - Feb 2024

TECHNICAL PROJECTS

Exoplanet Identification Using Clustering (Unsupervised Learning) | Jun/2024 | <u>Github</u> | <u>Website</u> | <u>Tableau Dashboard</u>
- **Employed Python libraries like Pandas, NumPy, and scikit-learn** to explore exoplanet features, identify patterns, and perform unsupervised machine learning using K-Means clustering to categorize exoplanets based on their characteristics.
- **Conducted Feature Engineering and Data Exploration** by calculating summary statistics and creating new features to gain deeper insights into the relationships between existing exoplanet properties.
- **Utilized Principal Component Analysis (PCA)** to reduce the number of features for visualization purposes and created interactive scatter plots with Plotly to effectively visualize the distribution of exoplanets within the identified clusters.

Breast Cancer Tissue Classifier (Binary Classification/End-to-End Web App) | Jun/2024 | <u>App</u> | <u>Github</u> | <u>Website</u>
- **Built a user-friendly web application using Streamlit,** allowing users to input cell tissue measurements through sliders and visualize their data with interactive radar charts.
- **Trained and evaluated four machine learning models for breast cancer classification:** XGBoost, Logistic Regression, Random Forest, and Kernel SVM. Employed techniques like handling missing values, label encoding, train-test split, and standardization.
- **Integrated a user interface element for selecting the desired classification model.** Implemented functions to scale user input data, make predictions based on the chosen model, and display results.

Arxiv Research Assistant (RAG Chatbot/End-to-End Web app) | May/2024 | <u>App</u> | <u>Github</u> | <u>Website</u>
- **Implemented a chatbot powered by RAG techniques** and crafted effective natural language prompts to guide the retrieval process fetching the most relevant research papers from the Arxiv repository.
- **Built a user-friendly web application** using streamlit to deliver the research assistant functionality in a readily accessible format.
- **Agent automatically generates papers** with links, summaries of the papers, and an informed recommendation on which of the relevant papers best fits the user's project. The agent then generates and manages a database to store/retrieve the information within the papers, promoting deeper engagement with the research material.

AudioBook Generator/Custom Voice Clone (Text-to-Speech/Voice Cloning) | May/2024 | <u>Github</u> | <u>Website</u>
- **Designed and implemented a high-fidelity TTS model using Coqui TTS** with PyTorch and torchaudio. Leveraged Natural Language Processing (NLP) techniques using NLTK for text pre-processing, including sentence tokenization with preserved punctuation.
- **Integrated TTS models for real-time speech generation.** Represent expertise in audio manipulation (concatenation, playback rate adjustment) and pioneered a method for smoother audio transitions using overlap-and-add.
- **Developed a text-to-audiobook pipeline** that segments text, synthesizes speech for each segment, and concatenates them for seamless audio creation.

Capuchin Bird Population Density (Audio) | Apr/2024 | <u>Github</u> | <u>Website</u>
- **Developed an audio classification model** using convolutional neural networks to identify Capuchin bird calls in rainforest recordings.
- **Analyzed audio data** through normalization, spectrogram conversion, and model training to accurately estimate bird population density.
- **Achieved 100% precision** on the classification task.

Pubmed 200K (NLP) | Mar/2024 | <u>Github</u> | <u>Website</u>
- **Implemented sentence classification for medical research papers** using techniques from the Pubmed 200K model.
- **Preprocessed unstructured text data** and created word embeddings for training multiple classification models.
- **Developed a high-performing model** by combining character and token level embeddings with positional encodings, achieving an F1-score of 0.85.