

Daryl Roberts

AI/ML Engineer

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Highly motivated and fast learning Machine Learning Engineer with a results-oriented background in Operations Management. Proven ability to leverage data analysis and problem-solving skills to drive significant improvements. Eager to transition my expertise in data acquisition, engineering, and model building to support advanced analytics initiatives and work with unique datasets to solve unique problems.

TECHNICAL SKILLS

Proficient: Deep Learning, Predictive Modeling, Statistical Analysis, Data Wrangling, Deep Neural Networks, Data Visualization, Data Science, Computer Vision, Algorithms, Natural Language Processing, Image Processing, Jupyter Notebooks, Python, Algorithms, Pattern Recognition, TensorFlow, Pandas, Numpy, Microsoft Office, Git/Version Control, Feature Engineering

Knowledgeable: PyTorch, SQL (MySQL, PostgreSQL), Langchain, Llama Index, Flowise, RAG/Agentic RAG, OpenCV, Web Scraping (Beautiful Soup), Requests(API calling), Huggingface/Transformers, GPU Programming

Additional Relevant Skills: Communication, Problem Solving, Fast Learner, Leadership, Resourceful, Logical, Public Speaking, Critical Thinking, Process Management

TECHNICAL PROJECTS

Analyzing Protein Sequences for Drug Discover (RAG Chatbot/Feature Engineering) | (In Progress) |

- **Leveraged Retrieval LLM Agent and Prompt Engineering** to identify significant features in protein sequences for drug discovery.
- **Built a data pipeline** using OpenAI to create a robust dataset with feature-engineered protein representations suitable for analysis.

Capuchin Bird Population Density (Audio) | Apr/2024 | [Github](#)

- **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.

Tesla CNN (Computer Vision) | Apr/2024 | [Github](#)

- **Conducted research on convolutional neural networks** for vehicle classification and bounding box prediction to improve Tesla Autopilot safety.
- **Trained and evaluated multiple vision models using YOLOv8** to achieve accurate predictions for object detection and classification.

Pubmed 200K (NLP) | Mar/2024 | [Github](#)

- **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.

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.

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

Machine Learning Model Deployment with Streamlit, Udemy (In Progress)

Knowledge Graphs for RAG, DeepLearning.AI (In Progress)

The Git & Github Bootcamp, Udemy (In Progress)

Artificial Intelligence A-Z, Udemy (In Progress)

The Complete SQL Bootcamp, Udemy [Certificate](#) - May 2024

Building Agentic RAG with Llamaindex, [DeepLearning.AI](#) - May 2024

Python for Computer Vision with OpenCV and Deep Learning, Udemy [Certificate](#) - Mar 2024

Machine Learning A-Z, Udemy [Certificate](#) - Feb 2024

Deep Learning A-Z, Udemy [Certificate](#) - Feb 2024

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.
- Analyzed vendor pricing to identify areas of overspending, leading to optimization of procurement processes and strengthened partnerships.
- 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

Position Title: Sergeant

Branch: Marine Corps

Dates: May 2014 - June 2020

Accomplishments:

- 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.

title: "Arxiv Research Assistant"

excerpt: "Discover how the Arxiv Research Assistant streamlines AI/ML research by providing smart paper recommendations, concise summaries, and interactive learning tools."

collection: portfolio

Check out the project [here](https://arxivresearchassistant.streamlit.app/)

Tools Used:

API Integration, Information Retrieval, Remote Downloading, Web Scraping(Beautiful Soup), Requests(API/Source Code Interaction), HTML understanding, Unstructured Document Processing, Langchain, Streamlit, Session State Management, Prompt Engineering, Prompt Chaining, Text Embeddings, RAG Database management, Retrieval via Embeddings Similarity Search, File Handling and Management

Summary:

- **Developed an AI-powered Arxiv Research Assistant:**

Leveraged advanced technologies such as Retrieval-Augmented Generation (RAG), Langchain prompt chaining, and intelligent agents to find and summarize relevant research papers based on natural language queries.

- **Integrated OpenAI's GPT-3 for Natural Language Processing:**

Utilized OpenAI's API for refining user queries, generating concise summaries, and making intelligent recommendations.

- **Implemented Iterative Document Processing and Retrieval:**

Used PyPDFLoader for PDF processing and FAISS for efficient document similarity searches, ensuring high relevance in research paper retrieval.

- **Built Interactive Web Application:**

Designed and deployed a Streamlit-based web application to provide an intuitive interface for researchers, enabling seamless interaction with the AI assistant.