HAIDER SAM

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PYTHON + DATASCIENCE ENGINEER

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PROFESSIONAL SUMMARY

Certified LLM Engineer (CLE) with specialized expertise in GPT-4, Langchain, GEN AI, and advanced machine learning techniques. With over 10 years of experience in AI and data science, I have consistently delivered high-performing AI solutions by leveraging cutting-edge technologies. My focus is on precision, effectiveness, and crafting stellar user experiences, transforming visions into reality through innovative AI applications.

CORE COMPETENCIES

- **Generative AI Models:** GPT-3, GPT-4, Alpaca, Cohere, Bert, T5, DALL-E, Llama, XLNet, MBart
- **Machine Learning Frameworks:** Pytorch, TensorFlow, LlamaIndex, Langchain, HuggingFace, Diffusers
- **Cloud Platforms:** Azure, AWS, Google Cloud
- **Databases:** Pinecone, RedShift, MongoDB, PostgreSQL, TimeScaleDB, MySQL
- **Data Visualization:** Pandas, Seaborn, Matplotlib, Plotly
- **Hosting & Deployment:** HuggingFace, Docker, Flask, Kubernetes, Azure, AWS, Google Cloud
- **Development Tools:** Jupyter, VS Code, Anaconda, GitHub, GitHub CoPilot

TECHNICAL SKILLS

- **Programming Languages:** Python, R, SQL, Java, Scala
- **Machine Learning Libraries:** TensorFlow, PyTorch, Scikit-Learn, HuggingFace
- **Data Visualization Tools:** Matplotlib, Seaborn, Tableau, Power BI
- **Big Data Technologies:** Hadoop, Spark, Kafka
- **Database Management:** MySQL, PostgreSQL, MongoDB, Pinecone
- **Cloud Platforms:** AWS, Google Cloud, Microsoft Azure
- **Hosting & Deployment:** Docker, Kubernetes, Flask, HuggingFace
- **Development Tools:** Jupyter, VS Code, GitHub, Anaconda

PROFESSIONAL EXPERIENCE

CATERPILLAR INC. — 2020 - Present

Certified LLM Engineer | GPT-4, Langchain & GEN AI & ML Expert

At Caterpillar Inc., I specialized in leveraging large language models (LLMs), particularly GPT-4, to drive innovation across various business processes. My expertise in Langchain and generative AI enabled me to develop and deploy cutting-edge machine learning solutions that improved decision-making and operational efficiency. I played a pivotal role in integrating advanced AI technologies into Caterpillar's systems, enhancing productivity and delivering measurable business outcomes.

- Spearheaded the design, development, and deployment of cutting-edge AI applications leveraging GPT-4 and other large language models, resulting in significant improvements in predictive accuracy and user engagement for clients across diverse industries.
- Delivered custom Langchain solutions tailored to client-specific needs, focusing on advanced tokenization techniques, neural tokenizer development, and the seamless integration of LLMs into existing workflows.
- Executed complex GEN AI integrations across cloud platforms, including AWS, Azure, and Google Cloud, enabling real-time analytics and the automation of data-driven decision-making processes.
- Provided strategic AI consultation services, advising clients on the latest trends in AI and machine learning, and guiding the successful implementation of AI solutions that align with business goals.

EDUCATION

MASTER OF SCIENCE IN DATA SCIENCE

- Rochester Institute of Technology

BACHELOR OF SCIENCE IN COMPUTER SCIENCE

- City College of Technology

REFERENCES

Available upon request.

- Conducted comprehensive model audits, utilizing state-of-the-art interpretability tools and bias detection techniques to ensure models are fair, transparent, and aligned with ethical AI standards.
- Facilitated AI training and knowledge transfer sessions for client teams, enhancing their understanding of AI technologies and improving their ability to manage and scale AI-driven projects.

INTERNATIONAL CODE COUNCIL
Senior Data Scientist — **2018 - 2019**

At the International Code Council, I served as a Senior Data Scientist, where I utilized my expertise in data analytics and machine learning to support data-driven decision-making processes. I was responsible for developing predictive models, analyzing complex datasets, and providing actionable insights that enhanced the organization's ability to enforce building codes and safety standards. My contributions significantly improved the accuracy and efficiency of data management systems, ultimately supporting the ICC's mission to ensure the safety and sustainability of the built environment.

- Developed AI models that enhanced product recommendations, predictive analytics, and customer insights, driving a 20% increase in revenue for the company.
- Engineered scalable machine learning pipelines using TensorFlow and PyTorch, reducing data processing times by 40% and improving the efficiency of model training and deployment across cloud environments.
- Integrated advanced NLP models like GPT-3 and BERT into customer support systems, significantly improving response accuracy and customer satisfaction through automated and context-aware interactions.
- Collaborated closely with software engineers, data engineers, and business analysts to design AI-powered features for mobile and web applications, resulting in a 30% boost in user engagement and retention.
- Developed and maintained a robust data infrastructure that enabled real-time data processing and analytics, supporting critical business operations and decision-making processes.
- Presented AI-driven insights and recommendations to executive leadership, influencing strategic decisions and contributing to the company's long-term success in the market.

CRITICAL MASS
Software Engineer — **2014 - 2017**

At Critical Mass, I began by specializing in custom development using CMS platforms such as WordPress and Shopify, delivering tailored digital solutions for clients. As I progressed, I expanded my technical scope to include modern JavaScript frameworks like React and Vue, along with backend development in Node.js and PHP-based projects. My versatility allowed me to handle a wide range of projects, from content management systems to dynamic, interactive web applications.

- Developed custom websites and e-commerce platforms using WordPress and Shopify, with expertise in PHP, HTML, CSS, and JavaScript.

CERTIFICATIONS

- Certified LLM Engineer (CLE) – Machine Learning Council
- Certified Data Scientist (CDS) – Data Science Council of America (DASCA)
- AWS Certified Solutions Architect – Associate

- Architected and implemented custom themes and plugins, utilizing PHP, MySQL, and RESTful APIs to optimize site performance.
- Transitioned to full-stack development, building dynamic web applications with React, Vue, Node.js, and Express.
- Developed and integrated RESTful and GraphQL APIs, ensuring efficient data flow between frontend and backend.
- Managed code repositories with Git and implemented CI/CD pipelines for continuous integration and deployment.
- Leveraged tools like Webpack and Chrome DevTools for performance optimization and streamlined development.
- Collaborated with UX/UI designers to translate designs into functional, cross-browser and cross-device compatible web pages.
- Followed Agile development methodologies, participating in sprint planning and delivering features iteratively.
- Conducted peer code reviews, mentored junior developers, and upheld high coding standards and best practices.

PROJECTS HIGHLIGHTS

AI-POWERED CUSTOMER SUPPORT CHATBOT

- Developed an AI-driven chatbot using GPT-4 and BERT models to handle customer inquiries and provide real-time support, reducing customer service response time by 50%.
- Integrated the chatbot with CRM systems, allowing seamless data flow and personalized customer interactions, leading to a 20% increase in customer satisfaction scores.
- Deployed the chatbot on AWS, utilizing Lambda and API Gateway for serverless architecture, resulting in reduced operational costs and improved scalability.

FRAUD DETECTION SYSTEM FOR FINANCIAL TRANSACTIONS

- Developed an AI-driven chatbot using GPT-4 and BERT models to handle customer inquiries and provide real-time support, reducing customer service response time by 50%.
- Integrated the chatbot with CRM systems, allowing seamless data flow and personalized customer interactions, leading to a 20% increase in customer satisfaction scores.
- Deployed the chatbot on AWS, utilizing Lambda and API Gateway for serverless architecture, resulting in reduced operational costs and improved scalability.

AUTOMATED DOCUMENT CLASSIFICATION SYSTEM

- Created an automated document classification system using NLP techniques and transformer models like BERT, improving classification accuracy by 25% compared to traditional methods.
- Implemented the system to categorize large volumes of legal documents, reducing manual processing time by 70% and increasing overall efficiency.
- Deployed the solution on Azure, leveraging Azure Machine Learning services for model training and deployment, ensuring robust and scalable operations.

PREDICTIVE MAINTENANCE FOR MANUFACTURING EQUIPMENT

- Developed a predictive maintenance solution using time-series analysis and LSTM neural networks, accurately predicting equipment failures and reducing downtime by 40%.
- Integrated IoT sensors with the AI model to monitor equipment health in real-time, allowing proactive maintenance and extending the lifespan of critical machinery.
- Deployed the solution in a cloud environment, utilizing AWS IoT and SageMaker, ensuring seamless integration and real-time data processing across multiple manufacturing plants.

REAL-TIME TRAFFIC PREDICTION SYSTEM

- Developed a real-time traffic prediction system using deep learning models such as RNNs and LSTMs, improving traffic flow prediction accuracy by 30%.
- Integrated the system with city traffic management infrastructure, enabling dynamic traffic light control and reducing congestion in high-traffic areas.
- Deployed the solution on Google Cloud, leveraging Google Maps API for real-time data and Kubernetes for scalable deployment, ensuring reliable performance in live environments.

DYNAMIC PRICING SYSTEM FOR E-COMMERCE

- Developed a dynamic pricing engine using machine learning algorithms like decision trees and gradient boosting to optimize product pricing in real-time, increasing profit margins by 18%.
- Implemented the system to consider factors such as competitor pricing, demand forecasting, and inventory levels, ensuring competitive and profitable pricing strategies.
- Deployed the engine on Azure with seamless integration into the e-commerce platform, allowing for real-time price adjustments and enhanced user experience.