

VINCENT TECO, PhD

(PhD, MEd, MBA, PGD-AI)

DATA SCIENTIST | AI ENGINEER

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PORTFOLIO: <https://eportfolio.mygreatlearning.com/vincent-powoh-techo>

SUMMARY OF EXPERIENCE

- Senior AI Engineer and Data Scientist with **11+ years** of experience in designing, developing, and deploying machine learning models and AI solutions across different industries.
- Leveraging data-driven insights and generative AI to drive business growth, improve operational efficiency, and innovate new product offerings.
- Expertise in Python, SQL, Scikit-Learn, TensorFlow, and PyTorch, with a strong foundation in statistics, data analysis, and deep learning techniques.

TECHNICAL SKILLS

- **Machine Learning:** Linear Regression, Logistic Regression, Ridge Regression, Lasso Regression, Decision Tree, Random Forest, K-NN, SVM, Bagging, Boosting, AdaBoost, Gradient Boost, XGBoost, Feature Engineering, Dimensionality Reduction, PCA, LDA.
- **Deep Learning:** Artificial Neural Networks (ANN), Convolutional Neural Networks (CNN), RNN, LSTM, Autoencoders, Transformers, Reinforcement Learning.
- **Generative AI:** LLMs, Transformers, Retrieval Augmented Generation (RAG), LangChain, HuggingFace, OpenAI, GPT, LLaMA, Mistral, Claude, Cohere, Stable Diffusion, BERT, FLAN-T5, BLOOM, PaLM, LLaVA, Claude, Anthropic, Prompt Engineering, Zero-Shot, Few-Shot, Chain of Thought, Self-consistency, Chain-of-Verification, ReAct.
- **Statistical Analysis:** Hypotheses tests, z-test, t-test, A/B test, Outlier detection, Sampling techniques, Boxplots, ANOVA, ANCOVA, ARIMA, SARIMA, SARIMAX.
- **Python Libraries:** NumPy, Pandas, Matplotlib, Seaborn, Plotly, Scikit-Learn, TensorFlow, Keras, PyTorch, PyPDF2, OpenCV, NLTK, spaCy.
- **Databases:** MySQL, MS SQL Server, TablePlus, Amazon RedShift, Vector Database, Pinecone, FAISS ChromaDB.
- **Data Analytics & Business Intelligence:** Tableau, Power BI, Tableau Prep Builder, Excel.
- **MLOPs:** Git & GitHub, mlflow, Streamlit, Gradio, Flask, Huggingface Spaces, APIs, CI/CD, Pickle, Docker.
- **Cloud Computing:** AWS, Azure, GCP, Vertex AI, Amazon Bedrock.
- **Others:** Model evaluation, Model Monitoring, Model/Data drift, Synthetic data generation, Dashboards and Reporting, Media Mix Modelling (MMM).

PROFESSIONAL EXPERIENCE

Senior Data Scientist | Generative AI Engineer
Akamai Technologies, Cambridge, MA.

Mar 2023 - Present

Akamai Technologies leads the field in internet infrastructure and cybersecurity, providing innovative solutions to optimize online experiences and fortify digital ecosystems. Worked on end-to-end generative AI projects, developed reports using Python data visualization libraries, and Tableau/ Power BI / Excel dashboards. Developed RAG-based generative AI solutions leveraging Amazon Bedrock for internal use, enhancing operational efficiency and decision-making. Utilized deep learning techniques, leveraging neural networks for NLP tasks. Performed MLOps and AIOPs on built models, ensuring efficient and scalable machine learning model deployment. Developed and deployed models on AWS Sagemaker and Bedrock, setup API gateway and test endpoint. Extracted source data from Redshift and automated flow of data into Tableau Dashboards.

- Collaborated with cross-functional teams to gather requirements, define project objectives, and develop generative AI solutions to address business needs and challenges.
- Developed a sentiment classifier for customer reviews resulting in more than 15% improvement in understanding customer sentiments and 10% increase in customer satisfaction.

- Built a chatbot to categorize support tickets and provide initial responses for resolution using Anthropic's Claude 2, Bedrock, Lambda Function, AWS CLI, and API Gateway, improving ticket categorization accuracy and reducing response time by more than 30%.
- Created a text summarization tool to streamline product documentation for the sales team using AI21 Labs' Cohere LLM, Bedrock, Lambda Function, and IAM, enhancing sales communication effectiveness by 15%.
- Utilized SQL to query and extract data from databases, including TablePlus and Amazon RedShift, to support data analysis and reporting effectiveness. Developed and optimized SQL queries on Amazon RedShift for efficient data retrieval and analysis, resulting in more than 20% improvement in data retrieval speed and scalability. Built vector database and performed semantic search on Pinecone Vector DB.
- Automated backend data ingestion processes into Tableau to streamline data integration and enhance data visualization capabilities, resulting in at least 20% reduction in time spent on data preparation.
- Leveraged Tableau to create interactive and insightful data visualizations, providing stakeholders with actionable insights and facilitating data-driven decision-making.
- Utilized Tableau Prep Builder to preprocess and clean data, ensuring data quality and consistency for analysis and reporting purposes.
- Prepared and presented reports to stakeholders, communicating key findings and recommendations in a clear and concise manner to support strategic decision-making processes.

Lead Data Scientist

Jan 2022 - Mar 2023

US Bank, Minneapolis, MN.

Led a cross-functional team of data scientists and engineers in the end-to-end development and implementation of a cutting-edge AI-based fraud detection system. The system successfully identified and prevented a significant number of fraudulent transactions, resulting in substantial financial savings for the organization. Deployed the models, Setup API gateway, and test END Point. Successfully implemented mortgage loss forecasting and handled data analytics and reporting work by extensively using Python, SQL, and Excel skills. Performed model validation, code review, and stress testing on loss forecast models. Utilized deep learning techniques, leveraging neural networks for complex tasks. Assisted in model outputs analysis and interpretation.

- Conducted market segmentation analysis to identify distinct customer segments and develop targeted marketing strategies for each segment.
- Developed and deployed a generative AI-based customer support system that leveraged natural language processing (NLP) techniques to automate responses to frequently asked customer queries.
- Transformed a love of data, math, programming, and statistics to act as an AI engineer and data scientist in a highly technical and analytical capacity.
- Extracted insights from large datasets using statistical analysis, performed exploratory data analysis (EDA). Utilizing methods including Bag of Words, K-means clustering, and DBSCAN. Performed text preprocessing (NLP) and sentiment analysis on text data to identify sentiments from customer chats.
- Collaborated with cross-functional teams to incorporate AI solutions into current systems, hence increasing productivity. Performed statistical analysis and A/B testing to verify the performance of models.
- Developed and maintained data pipelines and ETL processes to ensure data quality and availability for AI initiatives.
- Developed and deployed a generative AI-based customer support system that leveraged natural language processing (NLP) techniques to automate responses to frequently asked customer queries.

Sr. Data Scientist | AI Engineer.

Dec 2020 – Dec 2021

Dell Technologies, McClean, VA

Automated manual processes with AI, enhanced data quality through data cleaning and preprocessing, and contributed to innovative projects in image and text classification.

- Collaborated with cross-functional teams to establish project goals, compile necessary data, and create analytical fixes.
- Spearheaded overseeing of the implementation of AI/ML OCR models from development to production, making sure that strict validation and testing protocols were followed.
- Performed load balancers and Azure Kubernetes Service (AKS) to containerized model, deployed, and scaled the model to ensure effective traffic distribution and high availability.
- Extracted insights from data to spur innovation and operational efficiency, help establish connected enterprise and Internet of things projects and large-scale data processing pipelines.
- Created an image classification model through transfer learning of Convolutional Neural Networks such as ResNet, VGG and fine-tuning the network on a specific dataset

- Worked on digitizing handwritten stickies. Stickies written during agile design thinking sessions were digitized using handwriting recognition technologies using Convolutional Neural Networks(CNNs).

Sr. AI Engineer

Jan 2020 – Dec 2020

Rockwell Automation, Milwaukee, WI.

Led the development and execution of advanced data analytics and machine learning initiatives. Led cross-functional teams to deliver data-driven solutions that drive business growth and innovation. Worked within the Data Analytics team as a Machine Learning Engineer to develop data pipelines, MLOps pipelines, reports, and data validations. Communicated complex technical concepts and analysis results to both technical and non-technical audiences. Provided mentorship and guidance to junior team members, shared knowledge, and promoted a culture of learning and continuous improvement. Collaborated with business stakeholders to identify opportunities to leverage data to drive better decision-making and improve business outcomes.

- Troubleshoot performance issues and refined models based on feedback and outcomes, resulting in accuracy and efficiency.
- Developed and implemented machine learning algorithms for enterprise-wide AI applications, resulting in improved customer experiences and increased revenue generation.
- Conducted data mining and analysis to identify patterns and trends, enabling predictive modeling for business outcomes optimization.
- Analyzed system efficiency and identified bottlenecks, proposing automation opportunities to improve productivity and sustainability.
- Collaborated with cross-functional teams, including data scientists, engineers, and business units, to align data projects with organizational objectives.
- Troubleshoot performance issues and refined models based on feedback and outcomes, resulting in enhanced accuracy and efficiency.

Data Scientist | AI Engineer

Nov 2018 – Jan 2020

JAKA Robotics, Shanghai, PRC.

Explored the company dataset with Python and came up with observations and business insights from the data. Built a customer profile to help capitalize based on it and help the marketing department to target customers. Extracted actionable insights that drive the sales of the business.

- Acted as a Data Scientist in a highly technical and analytical role, harnessing a passion for data, mathematics, programming, and statistics.
- Mined, aggregated, and analyzed data to provide predictive insights and outcomes for key drivers of the business.
- Cleaned text data using various techniques to ensure its quality and suitability for analysis. and involved in implementing methods such as text preprocessing, removal of noise and irrelevant information, and handling missing data.
- Identified and experimented with different embedding techniques including Google Universal Sentence Encoder, Word2Vec, DocToVec, TF-IDF, and BERT.
- Evaluated the performance of each embedder, determined the optimal choice that yielded the best results in terms of matching user inputs with trained questions, and associated them with the corresponding department.
- Constructed dashboards and other visualization tools for easy data consumption by stakeholders and end-users.
- Utilized Geographic Information System (GIS) technology to evaluate member plotting, drive time reach, and market penetration potential.
- Provided predictive analysis for membership and new unit forecasting, and supported club acquisition underwriting and market growth strategy.

Data Scientist

Dec 2015 – Nov 2018

ICBC, Shanghai, PRC.

The Industrial and Commercial Bank of China (ICBC) is one of the largest and most prominent financial institutions in the world. As a leading multinational bank, ICBC offers a comprehensive range of banking and financial services, playing a pivotal role in both domestic and international finance. Applied my data science expertise to support critical business functions. My role included leveraging data analytics to enhance decision-making processes within the bank. I developed advanced analytical models to optimize risk assessment, improve customer segmentation, and facilitate data-driven strategies for the bank's financial products and services.

- Worked with Finance to troubleshoot and enhance Settlement Payment Reports for cash reconciliation.

- Performed analyses on large sets of data to extract impactful insights on user behavior that helped drive product and design decisions.
- Worked with the Python package Pandas and Feature Tools for data analytics, cleaning, and model feature engineering.
- Utilized AWS SageMaker and ML Ops tools to setup model training pipelines to be triggered when model drift is detected.

Data Scientist

Apr 2013 – Nov 2015

Amway (China), Shanghai, PRC.

Created a data analytics project for Amway, a multi-level marketing company specializing in health, beauty, and home care products, which can provide valuable insights and help optimize various aspects of the business.

- Gathered data from various sources, including sales transactions, customer interactions, product inventory, and marketing campaigns.
- Conducted EDA to gain an initial understanding of data, identify data quality issues and perform data cleansing when necessary.
- Created data visualizations and summary statistics to explore trends and patterns. Segmented Amway's customer base to understand different customer profiles.
- Utilized time-series analysis and machine learning techniques to predict future sales trends.
- Developed and implemented Media Mix Models (MMM) using statistical software such as SAS and R to identify the most effective marketing channels for driving sales.

EDUCATION:

Postgraduate Degree in Artificial Intelligence and Machine Learning

University of Texas (UT Austin), McCombs School of Business.

Master's Degree in Instructional Technology

University of Maryland Global Campus (UMGC)

Doctorate Degree in Business Administration (Multicultural Team Leadership).

Horizons University, Paris.

Master's Degree in Business Administration (Business Analytics)

Ningbo University

Bachelor's Degree in physics

University of Dschang

CERTIFICATIONS:

- IBM Applied Data Science Professional Certificate – Coursera.
- Generative AI for Natural Language Processing (NLP) – Great Learning.
- Data Science on Cloud (AWS & Azure, MLOps) – Great Learning.