VINCENT TECHO, PHD

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PORTFOLIO: tinyurl.com/techovip | **GITHUB:** github.com/TPVinnie

SUMMARY OF EXPERIENCE

- A Data Scientist with 11+ years of experience in architecting, developing, and deploying machine learning models and AI solutions across different industries, with proven ability to convey technical concepts to both non-technical and technical audiences and present to executives (C-Suite, managers, directors)
- Leveraging data-driven insights and generative AI to drive business growth, improve operational efficiency, and innovate new product offerings, with expertise in guiding organizations through AI Transformation and developing strategic roadmaps.
- Expertise in Python, SQL, and PyTorch with a strong foundation in statistics, data analysis, and deep learning techniques. Applied these skills across multiple industries including fintech, marketing, manufacturing, and healthcare, leveraging GCP, AWS, and Azure cloud environments.
- Proven success in leveraging Python, SQL, and BI tools (Tableau, Power BI) to deliver actionable insights. Proven success in driving decision-making through data storytelling, automation, and cross-functional team collaboration with strong communication skills.

Portfolios:

- **AI/ML Portfolio:** tinyurl.com/techovip
- **Cloud computing:** https://tinyurl.com/techocloud

TECHNICAL SKILLS

- **Programming & Scripting:** Python, R, SQL, React.js, Scala, Java, Bash, MATLAB
- **Machine Learning & AI:** Regression, Classification, Clustering, Feature Engineering, XGBoost, LightGBM, NLP , Neural Networks, Deep Learning, Reinforcement Learning, Time Series, Generative AI, Agentic AI (Langchain, Langgraph, Autogen, CrewAI) , Model Evaluation & Monitoring.
- **AI & LLMs:** OpenAI GPT, LLaMA, Mistral, Claude, Anthropic, BERT, FLAN-T5, Transformers, RAG, LangChain, HuggingFace, Prompt Engineering (Zero-Shot, Few-Shot, Chain of Thought), Fine-tuning.
- **Cloud & DevOps:** AWS, Azure, GCP, Docker, Kubernetes, MLOps, CI/CD.
- **Big Data & Databases:** Redshift, Snowflake, ETL Pipelines
- **Data Visualization & BI**: Tableau, Power BI, Matplotlib, Seaborn, Plotly, D3.js
- **Analytical & Soft Skills:** Critical Thinking, Problem Solving, Communication, Teamwork, Adaptability, Time Management, Attention to Detail

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)

Master's Degree in Business Administration - Business Analytics.
Ningbo University

Doctorate Dregree in Business Administration
Horizons University

CERTIFICATIONS:

- Generative AI for Natural Language Processing (NLP) – Great Learning.
- Data Science on Cloud (AWS & Azure, MLOps) – Great Learning.
- AWS Certified Cloud Practitioner – Amazon Web Services
- AWS Certified Machine Learning – Specialty – Amazon Web Services
- Google Cloud Professional Machine Learning Engineer (In Progress)

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PROFESSIONAL EXPERIENCE

Data Scientist | Generative AI Engineer | BI Analyst **Mar 2023 - Present**
Akamai Technologies

Akamai Technologies leads the field in internet infrastructure and cybersecurity, providing innovative solutions to optimize online experiences and fortify digital ecosystems.

Led the development and deployment of end-to-end generative AI and business intelligence solutions. Collaborated with cross-functional teams to work across data pipelines, visualization, and advanced NLP models to enhance operational efficiency, decision-making, and stakeholder engagement. Designed and automated workflows integrating AWS services and BI platforms to streamline repetitive processes and reduce manual intervention. Conveyed complex technical concepts to both technical and non-technical stakeholders through regular presentations and reports.

***KEY SKILLS**: RAG, LLM, Python/PySpark, SQL, Computer Vision, MLOPs, CI/CD, AWS (Bedrock, Sagemaker, EC2, Elastic Load Balancing, ECS, API Gateway, Lambda, Redshift, OpenSearch), ETL, Vector search/vecotorDB (FAISS, Pinecone, ChromaDB), Agentic AI (Langchain, Langgraph, Autogen), Data Visualization (Tableau, PowerBI, Python), Machine Learning, Data Analysis/Business Intelligence.*

Business Problems Solved: Reduced support ticket resolution time, improved customer sentiment analysis, and streamlined sales processes through AI-powered automation solutions.

- Built a Retrieval-Augmented Generation (RAG) system that automated support ticket resolution by extracting relevant documentation and generating context-aware responses, resulting in a significant (30%) reduction in resolution time. Additionally, the solution streamlined sales pitch preparation, cutting preparation time by over 50%.
- Built a chatbot to categorize support tickets and provide initial responses for resolution using Anthropic's Claude 3.5, Bedrock, Lambda Functions, AWS CLI, and API Gateway, improving ticket categorization accuracy and reducing response time by more than 30%.
- Augmented RAG-based ticket resolution system with computer vision capabilities, enabling automated processing of image-based tickets via OCR, EfficientNet classification, and CLIP embeddings.
- Fine-tuned a BERT LLM to deploy a sentiment classifier for customer reviews resulting in more than 25% improvement in understanding customer sentiments and 20% increase in customer satisfaction.
- Utilized SQL to query and extract data from Amazon RedShift database, combined and transformed the data using TablePlus to support data analysis and reporting effectiveness.
- Automated data pipelines from Amazon Redshift to Tableau using advanced **SQL** and scheduling, streamlining BI reporting and cutting manual data prep by over 20%.
- 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.
- Performed customer segmentation and created profiles to assist marketing strategies, improving targeted campaigns and customer engagement by 25%.
- Explored datasets with Python to generate business insights and actionable recommendations for sales and marketing teams.
- Gathered data from multiple sources including sales, customer interactions, and internal operations to generate actionable insights.
- Conducted exploratory data analysis (EDA), identified data quality issues, and performed cleansing to ensure accuracy.
- Developed and implemented Media Mix Models (MMM) using Python to analyze marketing channel effectiveness and optimize campaigns.
- Created visualizations and dashboards to communicate findings to executives and non-technical stakeholders.

Data Scientist **Jan 2022 - Mar 2023**
US Bank

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

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of fraudulent transactions, resulting in substantial financial savings for the organization. Deployed the models in production environments, 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. Presented findings to executives and managers and assisted in model outputs analysis and interpretation. Guided organization through AI transformation initiatives and developed strategic AI roadmaps.

KEY SKILLS: *Python/PySpark, SQL, NLP, Computer Vision, MLOPs, CI/CD, MLFlow, Airflow, Docker, Kubernetes, API, Azure, Data Visualization (Python, Tableau, PowerBI), Machine Learning.*

Business Problems Solved: Reduced fraudulent transactions, improved customer segmentation for targeted marketing, and automated customer support processes to enhance operational efficiency.

- Transformed a love of data, math, programming, and statistics to act as a data scientist and AI/ML engineer in a highly technical and analytical capacity.
- Integrated CNN-based document forgery detection and OCR field validation into the bank's fraud detection pipeline, enabling early identification of tampered IDs and falsified forms.
- Conducted market segmentation analysis to identify distinct customer segments and develop targeted marketing strategies for each segment.
- Extracted insights from large datasets using statistical analysis, performed exploratory data analysis (EDA), and applied clustering techniques (K-means, Hierarchical, DBSCAN) to uncover customer segments, enabling the teams to better tailor strategies and improve customer engagement.
- Developed and deployed a machine learning–based hybrid recommender system that combined customer clustering, classification, and chatbot integration, automating marketing pitches and boosting conversion rate by 20%.
- Collaborated with cross-functional teams to incorporate ML 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/ML initiatives.
- Cleaned and preprocessed text data using various techniques (text preprocessing, noise removal, handling missing data) to ensure data quality for analysis.
- Identified and experimented with embedding techniques including Google Universal Sentence Encoder, Word2Vec, Doc2Vec, TF-IDF, and BERT, selecting the optimal approach for NLP tasks.
- Worked with finance teams to troubleshoot and enhance reports for cash reconciliation and mortgage loss analysis.
- Performed analyses on large datasets to extract actionable insights on customer behavior and product usage.
- Utilized Python (Pandas, Featuretools) and SQL for data cleaning, feature engineering, and advanced analytics.
- Leveraged Azure Machine Learning and MLOps tools to set up model training pipelines triggered by model drift detection.

Data Scientist | AI/ML Engineer. **Dec 2020 – Dec 2021**
Dell Technologies

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 including UX designers and product managers to translate business requirements into ML model specifications. Presented technical solutions to executives and directors, securing funding for enterprise-wide AI initiatives.

KEY SKILLS: *Python/PySpark, GCP, Azure, Computer Vision, Resnet, Transfer Learning, YOLO, MLOPs, CI/CD, Docker, Kubernetes.*

Business Problems Solved: Digitized manual handwriting processes for agile design sessions, automated image classification tasks, and improved operational efficiency through AI-powered automation.

- Worked on digitizing handwritten stickies. Stickies written during agile design thinking sessions were digitized using handwriting recognition technologies.
- 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,

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- Extracted data-driven insights to drive innovation and operational efficiency, enabling connected enterprise and IoT initiatives while building scalable 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.
- Explored datasets with Python to generate business insights and actionable outcomes.
- Built customer profiles and performed segmentation to improve marketing campaigns and customer engagement.
- Mined, aggregated, and analyzed data to provide predictive insights for key business drivers.
- Evaluated embedding techniques for NLP solutions and implemented the optimal approach for matching user inputs with trained responses.
- Constructed dashboards and other visualization tools for easy consumption of insights by stakeholders.

Data Scientist | AI/ML Engineer **Jan 2020 – Dec 2020**
Rockwell Automation

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 through executive presentations. 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. Guided organization through AI transformation and developed strategic AI roadmaps.

KEY SKILLS: *Python/PySpark, Computer Vision, Time Series forecasting, GCP, CI/CD, Docker, Kubernetes.*

Business Problems Solved: Reduced equipment downtime through predictive maintenance, improved manufacturing efficiency via defect detection, and enhanced operational productivity through automated anomaly detection systems.

- Developed predictive maintenance models using LSTM and ARIMA on IoT sensor data, increasing equipment uptime by 20% and reducing maintenance costs by 15%.
- Applied time-series analysis and machine learning techniques to forecast trends and support business decisions.
- Built and deployed scalable MLOps pipelines for time-series forecasting and CNN-based defect detection, enabling early fault identification across manufacturing units.
- Developed and implemented machine learning algorithms for enterprise-wide ML 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/ML Engineer **Nov. 2018 - Jan 2020**
JAKA Robotics

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.

KEY SKILLS: Knowledge Engineering, Natural Language Processing (NLP), Python (Programming Language), R (Programming Language) Data Science, Artificial Intelligence (AI), Deep Learning, Statistical Modeling.

- Develop, test, validate and refine predictive models using artificial intelligence, deep learning and machine learning to optimize customer experiences, revenue generation, operational

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- effectiveness, marketing success and other business outcomes. Lead Project Teams and participated in multidisciplinary analytics project teams.
- Partner with Business Clients, establish professional relationships, and communicate with analytics clients to understand business needs.
- Used scikit-learn to implement and evaluate classical machine learning workflows—spanning regression, classification, clustering, and feature engineering within production-grade environments.
- Experimented with TensorFlow to build, optimize, and deploy deep learning models for computer vision, NLP, and time-series applications.
- Frame Problems with Stakeholder, research and construct problem frames to understand the analysis context and scope that will provide timely, useful results.
- Interview Subject Matter Experts, plan and conduct individual interviews with experts to gain valid information and data needed for analysis. Designed, developed, and maintained business intelligence software/platforms.
- 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.
- Developed quality reporting tools to extract data from multiple sources, providing proactive trend analysis and expected business outcomes.
- Gained a deep understanding of operational processes and needs, using technology to deliver impactful solutions.
- Established protocols, methods, and systems to collect, aggregate, store, and analyze data.
- Constructed dashboards and other visualization tools for easy data consumption by stakeholders and end-users. Created ad hoc reporting and analysis to support the organizational hierarchy.
- Investigated market demographics and competitor landscape, suggesting offensive/defensive marketing tactics.
- Utilized Geographic Information System (GIS) technology to evaluate member plotting, drive time reach, and market penetration potential.

Data Scientist | AI/ML Engineer **Dec. 2015 – Nov. 2018**
ICBC Shanghai

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.

KEY SKILLS: Data Science, Data Visualization, Python (Programming Language), R (Programming Language), Random Forest, k-means clustering

- Assisted Finance in debugging and improving Settlement Payment Reports for cash reconciliation.
- Developed Periscope dashboards for internal reporting and use.
- Worked in cross-functional teams with enthusiasts for our customers' experiences across platforms and partners, including data scientists, user researchers, product managers, designers, and engineers.
- Conducted analysis on large datasets to derive valuable insights into user behavior that influenced decisions about products and designs.
- Feature Tools and the Pandas Python package to work on data cleansing, analytics, and model feature engineering.
- Utilized AWS Sage Maker ML Ops tools.
- To provide a response label to each article for subsequent categorization, we updated our Python scripts to match training data with our database stored in AWS Cloud Search.
- Completed analytics for supply chain reporting and used Power BI.
- Built, trained, and deployed machine learning models using Amazon Sage Maker.
- Designed and implemented a CI/CD pipeline to automate model development and model deployment.
- Developed a customer service chatbot using generative AI.
- Setup model training pipelines to be triggered when model drift is detected.

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Data Scientist | AI/ML Engineer **Apr. 2013 – Nov. 2015**
Amway(China)

KEY SKILLS: Time Series Analysis, Media Mix Models (MMM), R (Programming Language), Data Science, Data Visualization

- Collected information from many sources, such as sales exchanges, client communications, product stock, and advertising initiatives.
- Constructed forecasting models for Amway product sales.
- Divided Amway's clientele to comprehend distinct types of customers.
- Used EDA to get a basic comprehension of the information.
- Determine which data quality problems exist and, if necessary, clean up the data.
- Examined demographics, buying history, and customer behavior.
- Enhanced model deployment efficiency and optimized data processing by utilizing R and Scala.
- Constructed summary statistics and data visualizations to investigate patterns and trends
- Employed machine learning and time-series analysis methods to forecast future sales patterns.
- Created and executed Media Mix Models (MMM) utilizing statistical programs like SAS and R to determine the best marketing avenues for increasing revenue.
- Developed a recommendation engine that suggests relevant products to customers.
- Implemented personalization techniques to enhance the shopping experience.
- Based on description (text) of a work request, recommend the most similar work order done in the past.
- Planners use the tasks from the most similar work orders to plan for the new work request.
- Used entity recognition system to extract them.
- I did all the work-initial business research, model development, microservice development, API development, deployment, scaling and feedback loop to train the model automatically on user feedback.
- As part of the operations team, wrapped models created by me and other data scientists in the team that used flask apps and deployed them to Pivotal Cloud Foundry, Kubernetes, AWS and Azure using Docker Containers.
- Used dependency parser to group the relevant entities together.
