Ted Zhao

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Summary

- Machine Learning Engineer with 5+ years of experience delivering end-to-end AI solutions across fintech, travel, and retail sectors.
- Expertise in RAG systems, computer vision, and reinforcement learning, improving business metrics by 2-10% across projects.
- Strong MLOps background with Databricks, MLflow, and ZenML, focusing on production-grade model deployment and monitoring.
- Track record of innovative solutions from credit scoring to LLM-powered chatbots, consistently driving business value through AI.

Experience

Data/AI Engineer, Rainmakr.ai – Adelaide, SA (Remote)   May 2023 – July 2024

- Developed LLM prompts with RAG to categorise company data into GICS-like themes, enhancing industry analysis.
- Built knowledge graphs from LLMs to extract entity relationships (executives, competitors, supply chains) for financial insights.
- Simplified 30+ table data models with DBT, reducing schema size by 50% and redundant data by 15%.
- Optimised queries through join refinement and re-indexing, cutting runtime by 50%.
- Integrated DBT with Dagster Cloud for mixed orchestration of notebook and DBT jobs.

ML Engineer/Data Scientist, Skyscanner – Shenzhen, China   Nov 2019 – July 2021

- Led end-to-end ML pipeline in Databricks/MLflow, engineering user behaviour features and iteratively improving CTR by 5-10%.
- Deployed ensemble of LightGBM and Deep Learning models with A/B testing framework for continuous model refinement.
- Developed ResNet-based classifier for 20 hotel categories with hierarchical labelling system, achieving 99% Top-5 accuracy.
- Enhanced image selection using MobileNet with multi-dimensional aesthetic scoring (composition, lighting, detail), lifting CTR by 3%.
- Built T+1 batch processing pipeline using AWS Lambda/PySpark for feature extraction, storing in Parquet format.
- Engineered real-time feature streaming from Elasticsearch with Redis caching, improving inference CTR by 2%.

Data Scientist, DJI – Shenzhen, China   Apr 2018 – Aug 2018

- Built Scrapy-based web crawler to gather city demographics and competitor store distribution data for market analysis.
- Developed quantitative ranking algorithm incorporating economic indicators and business factors for city prioritisation.
- Analysed post-launch user demographics (location, income, age) to create detailed customer segments.
- Monitored sales patterns and provided data-driven insights for campaign strategy optimisation.
- Developed Django/SQLAlchemy-based API for Jupyter extension, enabling efficient SQL querying and data model management.

Data Scientist, Smart Decision Technology Ltd – Shenzhen, China   Aug 2015 – Mar 2018

- Implemented credit scorecard system with feature selection, WOE calculation, and logistic model conversion in Python.

- Built SimPy-based logistics simulation with Flask/SQLAlchemy backend, securing 2-year contract with S.F. Express.
- Applied K-Means clustering for HKJC member segmentation, delivering lifecycle-based targeting strategies.
- Developed Chinese text sentiment analysis using Word2Vec and K-means for thematic clustering.
- Built supervised learning model with custom Chinese tokenization for app review classification.

Projects

ATO Chatbot 2023
- **Live Demo**: ato-chat.streamlit.app | **Source**: github.com/tade0726/ato_chatbot
- Built production-grade RAG system with LlamaIndex and Qdrant vector store, enabling context-aware tax information retrieval.
- Implemented MLOps pipeline with ZenML for data ingestion, OpenAI fine-tuning, and automated model evaluation.
- Developed Streamlit-based UI with real-time query rephrasing and source citations for enhanced user trust.

Quantitative Trading with Reinforcement Learning – University of Adelaide Sept 2022
- Researched and developed crypto trading strategy using Reinforcement Learning at University of Adelaide.
- Designed multi-asset portfolio optimisation with Sharpe Ratio reward system for buy/sell quantity decisions.
- Built dual Deep Learning modules for price signal prediction and market sentiment analysis.
- Implemented comprehensive backtesting framework evaluating Sharpe Ratio and Maximum Drawdown (MDD).
- Developed profit analysis system incorporating trading fees and compound returns visualisation.

Skills

ML/AI: Reinforcement Learning, Deep Learning, Clustering, LightGBM, XGBoost, SVM, Word2Vec, A/B Testing

MLOps/Cloud: Azure ML, AWS, SageMaker, MLflow

Data Engineering: DBT, Databricks, Snowflake, Dagster

Programming: Python, VBA, Scala, Julia

Web Development: Django, Flask, Asyncio, Scrapy

ETL/Data Tools: SQL, SQLAlchemy, Spark, Pandas, Tableau

Version Control & Containers: Git, Docker

Education

University of Adelaide, Master in Machine Learning – Adelaide, SA	June 2021 – May 2023
Shenzhen University, Bachelor in Mathematical Sciences – Shenzhen, China	Sept 2010 – July 2014

Languages

English: IELTS 7.0 **Mandarin**: Native **Cantonese**: Native

Certifications

Coursera, Machine Learning - https://www.coursera.org/account/accomplishments/verify/Q89DMB9RYYTB	Oct 2016
Udacity, Machine Learning Nanodegree - https://graduation.udacity.com/confirm/PKAQPLU2	Dec 2018