Roy Ma

Machine Learning Engineer

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Results-driven **MLE** with MITx credentials in stat and DS, Kaggle competitions expert ranked top 0.8%, skilled in developing and deploying SOTA ML/DL solutions, applying CS fundamentals and ML algorithms to solve real-world problems. **FINRA**-designated securities professional with 10+ years of experience in business development, quantitative analysis, and financial modeling. **Founder** of a business English school for executives, independently authored curriculums and personally delivered 600+ live sessions.

Technical Experience

Competitions Expert, Kaggle ranking top 0.8%
LLMs - You Can't Please Them All, ranked top **3%** (Silver Medal)

- Collaborated with a team of ML experts to develop adversarial strategies targeting Large Language Model (LLM), enhancing robustness and security.
- Engineered iterative Bayesian chaining to infer LLM behaviors without explicit parameter access, advancing interpretability and reliability.
- Developed and evaluated template-, heuristic-, and optimization-based injection attacks, contributing to the development of more secure AI systems.
- **Technologies:** `Pytorch` , `Transformers` , `scikit-learn` , `XGBoost` , `Numpy` , `Pandas`

Jane Street Real-Time Market Data Forecasting, ranked top **6%** (Bronze Medal)

- Independently designed and trained a financial forecasting RNN model incorporating real-time online fine-tuning, enhancing predictive accuracy with real-time market data.
- Developed data and feature engineering pipeline, reducing training noise and improving signal detection.
- Implemented extensive quality assurance protocols and hyperparameter optimization, deploying efficient cloud-based training workflows.
- **Technologies:** `Pytorch` , `Tensorflow` , `XGBoost` , `CatBoost` , `scikit-learn` , `Polars` , `Numpy` , `Pandas` , `SQL` , `AWS EC2` , `AWS S3` , `Docker` , `Git`

Santa 2024 - The Perplexity Permutation Puzzle, ranked top **5%** (Bronze Medal)

- Independently developed efficient simulated annealing, and evolutionary algorithms to address large-scale black-box optimization problems, managing a search space of magnitude 9e157.
- Developed and trained a deep neural network to probabilistically filter evaluation candidates, achieving over 90% reduction in computational resources required for LLM forward passes.
- **Technologies used:** `Pytorch` , `scikit-learn` , `Simulated Annealing` , `Genetic Algorithm` , `Numpy` , `Pandas`

MicroMasters in Statistics and Data Science, MITx

- Earned the MITx MicroMasters credential in Statistics and Data Science, over a

year-long program spanning over 4 MIT graduate-level equivalent courses, including probability, statistics, machine learning, and computations in data analysis.
- Built practical hands-on transferable ML engineering skills, including data and feature engineering, modeling development and deployment, tests, QA and MLOps pipelines.

Professional Experience

Business English Instructor, Founder
2022 - 2025, Beijing, China

- Taught over 600 hour-long live sessions.
- Oversaw 57 student programs over 2 years, instructed university professors, fortune 500 executives, and partner lawyers.
- Independently developed and authored full curriculums tailored to each student's unique professional backgrounds.

Director of Business Development, Cleveland International Fund
2017 - 2019, Cleveland, OH, U.S.

- FINRA-designated securities professional with a proven track record in capital raising and investor relations.
- Led the BD team to successfully close six private placement offerings, raising over $370M for commercial real estate developments in the U.S. Midwest markets.
- Managed relationships with 300+ accredited investors, securing new business opportunities and negotiating strategic partnerships.

Head of International, Multibank Exchange Group
2016 - 2017, Beijing, China

- Led a cross-functional team of 30+ finance professionals, overseeing all aspects of the international department.
- Exceeded executive strategic targets while managing brokerage operations and hedge fund products, including research, market analysis, sales, and business development.

Skills

Machine Learning: `Deep Learning` , `Artificial Intelligence (AI)` , `Neural Networks` , `Applied Machine Learning` , `Predictive Modeling` , `Statistical Modeling` , `Model Development/Selection` , `Pattern Recognition` , `TensorFlow` , `PyTorch` , `LangChain`
Data Engineering: `Data Science` , `Statistics` , `Feature Engineering` , `Data Visualization` , `Tableau` , `Pandas` , `Polars` , `NumPy`
Domains: `Natural Language Processing (NLP)` , `Large Language Models (LLM)` , `Prompt Engineering` , `Conversational AI` , `Text Mining` , `Retrieval-Augmented Generation (RAG)` , `Image Processing` , `3D Rendering/Reconstruction` , `Generative AI` , `Transformers` , `Diffusion` , `Image Generation` , `Fine Tuning`
SDE Fundamentals: `Python` , `Javascript` , `Algorithms` , `Data Structures` , `Computer Science` , `Problem Solving` , `Full-stack Web Development` , `Troubleshooting` , `Maintenance`
MLOps: `Amazon Web Services (AWS)` , `Kubernetes` , `Cloud Computing` , `Distributed Training` , `High Performance Computing (HPC)` , `Distributed Computing`

Certificates and Languages

English - Native, **Mandarin** - Native, **Japanese** - Business Conversational
FINRA, Series 63 - Uniform Securities State Law

FINRA, Series 82 - Private Securities Offerings Representative

Previous Professional Experiences

Director (China), Great Texas Fund, 2010 — 2016, Houston, U.S.
Operations Manager, Carhart llc., 2009 — 2010, Chicago, U.S.
Legal Assistant, Kalik Lewin, 2008 — 2009, Washington D.C., U.S.

Education

M.M., Statistics and Data Science, MITx
B.A., Economics, University of Maryland