

# 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

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### 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

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### 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

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Supervised Learning   Unsupervised Learning   Deep Learning   LLM   Reinforcement Learning  
Time Series   Data Engineering   Feature Engineering

**Machine Learning:** PyTorch, TensorFlow, Sklearn, Transformers, XGB etc.

**Data Engineering:** SQL, Polars, Pandas, ETL

**MLOps:** Docker, FastAPI, Git

**Languages:** Python, TypeScript, Matlab, Latex

## Certificates and Languages

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English - Native

Mandarin - Native

Japanese - Business Conversational

FINRA, Series 63 - Uniform Securities State Law

FINRA, Series 82 - Private Securities Offerings Representative

## Previous Professional Experiences

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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**

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**M.M.**, Statistics and Data Science, MITx

**B.A.**, Economics, University of Maryland