Andrew Liao

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Education

New York University — New York, NY

Bachelor of Arts in Computer Science & Data Science — *Expected Dec 2025*

- Relevant Coursework: Machine Learning, Data Management & Analysis, Causal Inference, Computer Systems, Discrete Mathematics, Linear Algebra, Probability & Statistics, Data Science I & II, Forecasting Models, Data Structures & Algorithms
- Study Abroad: Prague, Czech Republic (Fall 2022), Paris, France (Fall 2024)

Work Experience

Fine Ace Asset Management Co. — Taipei, Taiwan

Quantitative Research Intern — *May 2022 - Sep 2022*

- Conducted in-depth financial analysis of Tianli Offshore Wind Technology, synthesizing insights from investor presentations, quarterly earnings, and annual reports to deliver a comprehensive Q2 update to eight senior directors
- Streamlined data reporting processes by leveraging the in-house IDSP database, enabling the creation of critical information reports and enhancing weekly analyst presentations with actionable insights
- Collaborated with cross-functional teams to develop predictive models and data visualization dashboards, improving decision-making processes for quantitative investment strategies

Outlier AI — New York, NY

Research Engineer Intern — *Jan 2024 - May 2024*

- Designed and implemented structured evaluation frameworks for ranking and scoring 200+ large language model outputs, directly contributing to reinforcement learning from human feedback (RLHF) and preference-based optimization pipelines
- Developed methodologies to assess AI-generated responses across diverse scenarios, ensuring improved model safety, alignment, and instruction-following capabilities
- Leveraged advanced knowledge of machine learning principles to support the iterative development of large language models, focusing on enhancing output quality and refining response generation systems

Relevant Projects

Advanced CartPole Stabilization via Deep Learning — *Dec 2024*

- Designed and implemented an Actor-Critic framework in PyTorch, combining policy gradient optimization with Monte Carlo estimation to achieve a perfect 500/500 score on the CartPole problem. The solution utilized a 3-layer neural network architecture tailored for rapid convergence and robust stability.
- Engineered a novel state representation by decoupling acceleration dependencies while preserving the Markov property, achieving 475/500 performance. Hyperparameters were systematically fine-tuned through grid search, reducing training time to under 10 minutes.

Optimized CTR Prediction Using Deep Learning — *Nov 2024*

- Developed a sophisticated deep learning model for click-through rate (CTR) prediction using embedding layers in PyTorch, complemented by XGBoost to enhance performance. Achieved a 0.767 AUC, surpassing a logistic regression baseline by 25.5%.
- Created an advanced feature engineering pipeline leveraging empirical Bayes estimation and temporal optimizations. This approach streamlined high-dimensional data processing and significantly improved prediction accuracy for large-scale datasets.

Analyzing Spotify Hits Through Data Analytics — *Feb 2024*

- Conducted an extensive analysis of 52,000 Spotify tracks using Python, employing Principal Component Analysis (PCA) to reduce 23 features to the 12 most critical drivers of song popularity and genre differentiation.
- Developed linear and logistic regression models to predict song popularity and classify genres. Insights were effectively communicated through 15+ interactive visualizations and a user-friendly dashboard for non-technical stakeholders.

FIFA22 Player Analytics with Predictive Modeling — *Nov 2023*

- Built a linear regression model to analyze the impact of key attributes on FIFA22 player rankings, achieving an R^2 of 0.85. Integrated classification algorithms to predict players' preferred foot with 92% accuracy.
- Applied K-means clustering, optimized using the elbow method, to categorize players into five distinct skill-based groups. This process uncovered actionable insights into player performance metrics across diverse categories.

Technical Skills

Languages: Python, Java, R, SQL, LaTeX, C++
Developer Tools: Git, Visual Studio Code, PSQL, SQLite
Libraries: NumPy, Pandas, Scikit-learn, Matplotlib, PyTorch, dplyr, ggplot2