

ERDING LIAO

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EDUCATION

- Expected 12/23 **NEW YORK UNIVERSITY** New York, NY
The Courant Institute of Mathematical Sciences
M.S. in Mathematics in Finance
- **Expected Coursework:** high-level programming language (Java, C++), stochastic process, penalized regression, linear regression
- 09/18 - 06/22 **UNIVERSITY OF CALIFORNIA, SAN DIEGO** San Diego, CA
B.S. in Mathematics (Applied)
- **Coursework:** linear algebra, partial differential equations, method of moments, maximum likelihood estimation, Bayesian statistics, Markov chain, big data analysis, data mining, neural networks, recommendation systems
 - **Honors/Awards:** Cum Laude (top 8%)

EXPERIENCE

- 08/19 - 10/19 **DONGXING SECURITIES CHONGQING BRANCH** Chongqing, China
Data Analyst Summer Intern
- Collected and processed clean energy industry data (e.g., from top 20 car companies in China), with Azure HDInsight; prepared data visualization for industry report
 - Built large-scale database from daily news and data for 3,000 clean energy automobile stocks from 2018 to 2019, using R and SQL
 - Used feature extraction on news about 1,000 selected stocks in 2019; improved stock prediction based on sentiment analysis with RNN; average accuracy increased by 7%

PROJECT

- 09/20 - 06/21 **UNIVERSITY OF CALIFORNIA, SAN DIEGO** San Diego, CA
Math Honors Research: Hidden Markov Model with Partially Missing Observations (C++, R)
- Evaluated practicality of Hidden Markov model in financial market prediction with respect to HMM-GMM algorithm and Monte-Carlo GMM
 - Developed alternative EM-algorithm for Hidden Markov model with discontinued observations; mathematically proved and analyzed its potential implementation for HMM-GMM model
- 02/21 - 05/21 **Deep-Learning AI - Poetry Generator (Python)** San Diego, CA
- Implemented language model for RNN based on datasets of Shakespeare poetry; analyzed performance with respect to BIC and time/space complexity
 - Discussed potential improvements of N-gram model with RNN Markov and possibility of reducing complexity through pruning
- 09/20 - 12/20 **Prediction Model - NYPD Allegations (Python)** San Diego, CA
- Conducted data cleaning on dataset of complaints and allegations against New York Police Department; analyzed dependency of factors with Kolmogorov Smirnov Test
 - Applied feature engineering on data; constructed prediction model of allegation outcomes using random forest and SVM
 - Analyzed performance of model through grid-search and evaluation on fairness

COMPUTATIONAL SKILLS / OTHER

Programming Languages: Java, C++, R, Python, SQL, MATLAB

Languages: Mandarin (native); English (fluent)

Activities: Vector calculus teaching assistant and grader at UCSD