Wenhong (Tony) Sun

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EDUCATION

University of California, Los Angeles — Los Angeles, CA
Bachelor of Science in Statistics and Data Science & Mathematics/Economics — *Expected December 2024*
- GPA: 3.98/4.00; College Scholars Program
- Coursework: Data Science, Math Modeling, Data Mining, Multivariable Calculus, Linear Algebra, Real Analysis, Complex Analysis, Probability Theory, Mathematical Statistics, Numerical Analysis, Econometrics, Finance

WORK EXPERIENCE

Deep Learning Methods for Tracking Bacterial Movements — Los Angeles, CA
Undergraduate Researcher at Wong Lab, UCLA — *September 2023 - Present*
- Leveraged DeLTA (Deep Learning for Time-lapse Analysis) to analyze over 80,000 images from the lab's Dual Reporter system, achieving precise segmentation and tracking of bacterial movements amidst background noise
- Identified and resolved issues impacting performance on novel datasets by performing background subtraction
- Operated a remote workstation for computationally demanding deep learning tasks to improve efficiency
- Presented results to PI and lab members in weekly meetings, facilitating collaborative discussion and feedback

Huatai Securities Research — Shanghai, China
Financial Engineering Intern — *June - August 2023*
- Enhanced an in-house developed multi-factor stock selection Python pipeline
- Conducted industry neutralization by developing and standardizing metrics such as P/B ratios and dividend yields
- Assessed factor effectiveness with Rank Information Coefficient by calculating the correlation between current period factors values and next period index returns; formed a basket of factors with the highest effectiveness
- Implemented Fama-French multi-factor model and formulated a strategy that longs the top 20% P/E stocks from the HS300 index universe, achieving an 11% annual return
- Devised a volatility-adjusted market-cap weighted index, resulting in an 85% index return over nine years

PROJECTS

Python Trading Library — Los Angeles, CA
Principal Developer — *February 2024 - Present*
- Developing a Python trading library to automate market analysis, trading strategy development, and risk management for various financial products, emphasizing modular design for scalability
- Developed real-time market monitoring and pricing models, such as DCF for bonds and Black-Scholes for options
- Crafted portfolio construction algorithms using technical indicators, such as RSI and MACD, for signal detection, supported by a back-testing framework to evaluate and optimize strategies based on historical data analysis
- Established risk control frameworks with Value at Risk (VaR) calculations, Greeks for options portfolios, and scenario analysis tools that quantify market risk exposure to assess and mitigate financial risks

Ensemble Model for Predicting Election Outcome — Los Angeles, CA
Project Leader — *August - September 2023*
- Performed data preprocessing, including missing value imputations with bagged trees, to improve model reliability
- Built a stacked model with gradient-boosted trees, SVM, KNN, and MLP models to predict election outcome
- Backtested the model to predict the percentage of voters in a county that voted for Biden 2020 from 124 variables
- Concluded that the final stacked model is 4 times better in RMSE than the best-performing individual model

EXTRACURRICULAR EXPERIENCE

Photography Club — Chengdu, China
Alumni Advisory Board Member and Former Vice President — *September 2019 - Present*
- Led a photography club of 50 members, fostering a collaborative environment for photography enthusiasts
- Organized and participated in photographing school assemblies and events, such as sports days
- Delivered bi-weekly presentations on photography basics, enriching members' skills and knowledge in the art
- Managed and curated content for the school's social media account, amplifying its digital presence and outreach

SKILLS & INTERESTS

Technical Skills: Python (Pandas, Scikit-learn, PyTorch), R(Tidyverse), SQL, C++, Bloomberg
Languages: Mandarin Chinese (Native), English (Fluent), French (Basic)
Certification: Chartered Financial Analyst (CFA) Investment Foundations Certificate
Award: International Economics Olympiad (IEO 2020) Silver Medal
Interests: Hockey, Soccer, Tennis, Photography, Movies, Chess