Bin HAO

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EDUCATION

Peking University **Beijing, P.R. China**
Master of Science in Computer Science and Technology, supervised by Prof. Zhouchen Lin *2014.09 – 2017.07 (Expected)*
Major in Machine Learning, Department of Machine Intelligence, School of Electronic Engineering and Computer Science

Peking University **Beijing, P.R. China**
Bachelor of Science in Mathematics and Applied Mathematics *2010.09 – 2014.07*
Major in Statistics, Department of Probability and Statistics, School of Mathematical Sciences
First Prize in National Mathematical Olympiad, Second Prize in National Undergraduate Mathematical Contest in Modeling

Technion – Israel Institute of Technology **Haifa, Israel**
Exchange Student in Mathematics Department and Computer Science Department *2013.06–2013.09*

SELECTED RESEARCH PROJECTS

Key Laboratory of Machine Perception, Peking University **Beijing, P.R. China**
Trading Strategy: Arbitrage Strategy between Futures and Spots *2014.06 – Present*
The main goal of the project is to explore relationship between silver futures contracts and T+D spots contracts and make progress in algorithmic arbitrage trading. The project is in collaboration with Chance Hunt Capital Management.
- Applied local linear regressions to estimating no arbitrage price gaps and current price gaps between futures and T+D spots.
- Constructed arbitrage trading signals based on the relationships between no arbitrage price gaps and current price gaps.
- Developed the strategy using Apama event processing system and achieved remarkable performance in real market.
- Extended the strategy to arbitrage between stock index futures and ETF based on R TradeAnalytic project.

Key Laboratory of Machine Perception, Peking University **Beijing, P.R. China**
High-frequency Trading: Statistical Prediction on Return of Liquid Futures contract *2015.06 – Present*
The project aims to use features derived from millisecond transaction data to predict expected return of liquid futures contract.
- Constructed robust principal component analysis with return, volume, open interest series and their nonlinear transformations to extract informative, non redundant features with fully consideration of historical auto-correlation.
- Developed a prediction system relied on LASSO regression using principal components constructed above.
- Applied the model to several different commodity futures and achieved average 61.47% prediction accuracy on test sample.
- Developed market and trading application interfaces (CTP) of Shanghai Futures Exchange using C++ on Linux operating system.

Beijing International Center for Mathematical Research, Peking University **Beijing, P.R. China**
Research on Modeling Gene Regulatory Networks *2012.04 – 2013.06*
The project aims to reversely engineer tree-evolving gene networks underlying biological lineages supervised by Prof. Hao Ge.
- Applied LASSO to gene selection, used probabilistic graphical models to reconstruct gene network based on biological lineages.

PROFESSIONAL EXPERIENCE

Empiricus Capital Management **Beijing, P.R. China**
Intern, Hedge Fund Statistics Project on Global Hedge Funds *2014.02 – 2014.06*
The project aims to analyze the influence factors that affect the performance and risk of hedge funds, such as board of director variables, internal variables (Age, High water mark, Minimum Investment Size, Management Fee, Performance Fee), external variables (Tax, Restriction on location of key service providers, Minimum Capitalization, Marketing distribution channels).
- Generated bootstrap data sample and analyzed the multicollinearity among variables using VIF test, conditional numbers, etc.
- Categorized funds by inflows and outflows considering smart money phenomenon and analyzed performance by groups.
- Applied different regression methods such as stepwise linear regression and ridge regression to measuring factors' influence.
- Developed research system from database data import, data cleaning to statistical model application using R on Linux system.

SDIC CGOG futures Co.,LTD **Beijing, P.R. China**
Intern, Research on futures Trading and Risk Management *2013.11 – 2014.01*
- Reviewed literature on candlestick pattern research and quantitatively tested empirical conclusions on China's stock market.
- Developed parallel algorithms that test candlestick pattern model on more than 2000 China's stocks using R language.

RESEARCH INTERESTS

Statistics: Machine Learning, Mathematical Statistics, Optimization, Probability Theory.

Mathematical Finance: Hedge Fund, Quantitative Research on Trading Strategy, Algorithmic Trading.

LANGUAGES/SKILLS/OTHERS

Languages: Mandarin (Native), English (Professional Proficiency).

Programming Languages: R, C++/C, SAS, Latex, HTML. **Computer Skills**: Fondness for Linux, Madness for Emacs.

You can visit my personal website http://bingtangben.github.io for more information.