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)*
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*
Department of Probability and Statistics, School of Mathematical Sciences

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**
High-frequency Trading: Statistical Prediction on Return of Liquid Futures contract *2015.06 – Present*
The project aims to use the features derived from millisecond transaction data to predict expected return of liquid futures contract.
- Constructed robust PCA based on the correlation among price series, volume series and open interest series to extract informative, non redundant features and then developed a prediction system relied on LASSO regression.

Key Laboratory of Machine Perception, Peking University **Beijing, P.R. China**
Trading Strategy: Arbitrage Strategy between Futures and Spots *2014.06 – 2015.06*
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 with different delivery dates and T+D spots.
- Constructed arbitrage trading signals based on the relationships between no arbitrage price gaps and current price gaps.
- Developed a trading strategy using Apama event processing system and extended the model to arbitrage between stock index futures and ETFs.

Beijing International Center for Mathematical Research, Peking University **Beijing, P.R. China**
Research on Modeling Gene Regulatory Networks *2012.04 – 2013.06*
The whole project aims to reverse engineering tree-evolving gene networks underlying developing biological lineages and my major work is modeling big gene data via statistical models. The project is supervised by Prof. Hao Ge.
- Applied LASSO to gene selection, used the probabilistic graphical models to reconstruct gene network and made progress due to consideration of biological lineages.

PROFESSIONAL EXPERIENCE

Empiricus Capital Management **Beijing, P.R. China**
Intern, Hedge Fund Statistics Project *2014.08 – 2015.04*
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).
- Applied bootstrap analysis to enlarge the size of data sample and analyzed the relationships among various variables using different regression methods, such as logistic regression, time series regression and etc.
- Developed a system based on Matlab to reveal the structure of relationship between the risk-adjusted performance and governance factors.

SDIC CGOG futures Co.,LTD **Beijing, P.R. China**
Intern, Research on futures Trading and Risk Management *2013.09 – 2014.02*
The project aims to analyze futures market behavior and my major work is to develop mathematical model to describe it.
- Studied on the volatility of real futures trading data and constructed mathematical model to explain market behaviors using stochastic GARCH model.
- Given a new understanding about short-term trading in futures market and helped the traders judge market direction.

RESEARCH INTERESTS

Statistics: Machine Learning, Optimization, Probability Theory.

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

LANGUAGES/SKILLS/OTHERS

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