Huan He

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Education

2016-Present	**M.Sc in Computer Science**, *Emory University*.
	Advisor: Dr. Joyce C.Ho
	Main courses: Machine Learning, Numerical Analysis I/II, Topics in Distributed Systems
2014-2016	**M.Sc in Financial Mathematics**, *University of Connecticut*.
	Advisor: Associate Professor Emeritus. James G. Bridgeman
	Main courses: Risk Theory, Stochastic Process, Statistical Computing, Financial Programming
2010–2014	**B.S in Financial Engineering**, *Shanghai Finance University*, Shanghai, P.R.China.
	Main courses: Advanced Mathematics, Options and Futures, Financial Engineering, Time Series Analysis

Research Experience

10/2017–Present — **Distributed Big Tensor Data Analytics**, *Poster & Paper, not submitted yet*.
- Cluster Setup: Hadoop + Zookeeper + Spark + Hbase + Hive
- Contributions: Reduced sharing and I/O operations by local memory caching, Dynamic workload balancing by a scheduler, Scalability using a novel parallel and synchronization strategy.
- Advised by: Dr. Joyce C. Ho, Dr. Avani. Wildani

10/2017–Present — **Recommendation System using Tensor Factorization**, *In preparation*.
- A parallel algorithm: Partitions the three-way tensor(user-items-features) into fixed(common) and random(individual) parts first and then conducts tensor decomposition in parallel. Finally it will correctly combine them and output the results.
- Advised by: Dr. Joyce C. Ho, Dr. Xiong .Li

Selected Projects

6/2017-8/2017 — **Implement two parallel tensor decomposition algorithms**, *Advised by Dr.Joyce C. Ho*.
In the first project, my role has been to develop a tensor decomposition function based on a existing parallel matrix factorization algorithm(Hogwild!) that uses multi-threads and shared memory. The second algorithm is to implement a existing parallel tensor decomposition algorithm on different datasets.

12/2016 — **Survival Analysis for GBMLGG and BRCA(cancer datasets)**.
Built multiple linear regression model, random forest and deep neural networks for the survival analysis.

01/2016-04/2016 — **Application of Stochastic Volatility Model**, *Advised by Dr. James G. Bridgeman*.
Conventional Black-Scholes Model assumes equity returns are normally distributed and volatility is unaffected by the changes in the price of the underlying security, which can not model stock prices perfectly. To overcome this shortcomings, We used a Stochastic Volatility Model that assumes the volatility of the underlying price is a stochastic process(Geometric Brownian Motion). And parameters are obtained by Bayesian parameter estimation based on Markov Chain Monte Carlo methods.

09/2015-11/2015 — **American Airlines Bankruptcy**.
Detailed analysis its reason and how the bankruptcy resolved

10/2013-04/2014 — **Quantitative Research of high yields bonds in China**, *Advised by Dr. Xiufeng. Shang*.
It includes Merton& KMV model empirical analysis

Work Experience

2017 Fall	**Grader**, *CS 534, Machine Learning, Emory University*, Atlanta.
06/2013-06/2014	**Intern**, *Business Department, Shanghai Branch, China Minsheng Banking Co., Ltd*, Shanghai.
	○ Prepared mortgage loan contract and expatiated contract details, especially in terms of the notarization of mortgage and the necessity of clients' alternative property.
	○ Familiarized myself with the techniques of composing and decomposing the existed financial tools and means
05/2012-09/2012	**Intern**, *Corporate Trust Department, Shanghai Branch, AJ Corporation(AJC)*, Shanghai.
	○ Covered preliminary review of contracts on trust products and coordinated contract reviews
	○ Examined and evaluated risks through preliminary review of contracts

Honors & Achievements

8/2013	The Honor of Outstanding Intern, Shanghai Branch, China Minsheng Banking Co., Ltd
2012	The Honor of "Merit Student", SFU (college-level)(2011-2012)
2012	Second Class Scholarship for Outstanding Student(academic performance ranks top 10 in the department)
2012	Second Prize in Social Activity, SFU (Spring semester)
2011	Second Class Scholarship for Outstanding Student (Fall & Spring semester)
2011	Second Prize in Social Activity, SFU (Fall & Spring semester)

Research Interests

Big Data Analytics:

Machine Learning:.
- ○ Unsupervised Learning including Tensor Decomposition and Matrix Factorization
- ○ Generalized Linear Model

Optimization:.
- ○ Adaptive Stochastic Gradient Descent
- ○ Distributed Alternating Direction Method of Multipliers (ADMM)

Distributed System and Parallel Programming:.
- ○ Apache Spark and Apache HBase

Computer skills

Programming Languages:	Python, C/C++, Scala, PostgreSQL, VB
Math/Stat Languages:	Matlab, R, Eviews
Tools:	Spark, LATEX, AWS, Git, Linux command line