

## EDUCATION

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### University of Science and Technology of China (USTC)

Hefei, China

B.S. in Mathematics

Sep.2015-June 2019 (*Expected*)

- **Rank : 3/50** (Department of Probability and Statistics)
- **Overall GPA:**3.97/4.3 (91.67/100)
  - *Overall GPA 3.81/4.3* -Freshmen Year
  - *Overall GPA 3.94/4.3* -Sophomore Year
  - *Overall GPA 4.20/4.3* -Junior Year
- **Major GPA :** 4.07/4.3

### University of Sydney (USYD)

Sydney, Australia

Young Leaders Program - Inventing the Future

Jan.2018- Feb.2018

- Designed the model of a high-tech comb
- Conducted market survey
- Completed the final report

## RESEARCH EXPERIENCE

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### Tensor Structure Parameter under Envelope Model

July 2018 - Aug.2018

Supervisor: **Assistant Prof. Lan Liu**, Department of Statistics, University of Minnesota

- Generalized the definition of the envelope in the tensor case parameter
- Applied tensor kronecker decomposition on the asymptotic covariance matrix
- Preserved the structure of the tensor-value parameter and applied one-dimension algorithm to each dimension
- Wrote simulation code in R, which demonstrated higher accuracy and lower variance for the proposed estimator compared with baseline model

### A Semiparametric Approach to Envelope Model

Aug.2018 - Sep.2018

Supervisor: **Assistant Prof. Lan Liu**, Department of Statistics, University of Minnesota

- Proposed a model free method which overcame the disadvantage of the previous model free envelope estimation that relies on accurate initial parameter estimation and linear regression model
- Used semiparametric method to envelope model and calculated the efficient estimation to reach the efficiency bound
- Deduced the orthogonal tangent space to obtain the estimating equation
- Compared proposed method with previous dimension reduction techniques (SIR, SAVE) via simulations in Rcpp, which showed the proposed method outperforms opponents when the correlation between variables is high

### False Discovery Rate on the Multivariate Situation

Sep.2017 - June 2018

Supervisor: **Prof. Zemin Zheng**, Department of Statistics and Finance

- Generalized the False Discovery Rate (FDR) on the multivariate situation and used the SRRR model to calculate parameters
- Used Model-X knockoff variables to construct symmetric statistics and computed the threshold to control FDR
- Proved the bound on FDR control mathematically, did the power analysis and proved the Robustness analysis of our model
- Showed good performance on Simulation and Real data, compared with the FDR in group sparse and multitask regression

## MANUSCRIPT AWAITING PUBLICATION

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**Model-X Knockoff Filter For Multitask Linear Regression Model Controlled Variable Selection.** Han

Chen, Saijun Zhao, Zemin Zheng

**A Semiparametric Approach to Envelope Model.** Han Chen, Lan Liu

## AWARDS

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<b>National Scholarship, top 1%</b>	2018
<b>Championship</b> of Men's doubles in Badminton at 2018 Sports Games in Anhui Province	2018
<b>Championship</b> of Men's Team, in Badminton at 2018 Sports Games in Anhui Province	2018
<b>Gold Scholarship, top 3% (Grade 2)</b>	2017
Excellent Prize membership in Student Union	2017
Second place in Debate Competition at USTC	2016
Outstanding Freshman Scholarship(Grade 1)	2016

## TEACHING EXPERIENCE

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***Mathematical Analysis II*** Credit: 6, Class: 70 undergraduates

- Ranked 9th among all 157 tutors in the final evaluation in USTC
- Graded assignments and examinations
- Instructed class sessions to clarify any problems related to course materials

## EXTRACURRICULUM EXPERIENCE

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<b>Vice President</b> of Student Union	Mar.2017-Mar.2018
<b>Minister</b> of Sports in Student Union	Mar.2016-Mar.2017
Volunteer at Welcome Foreign Students	Sep.2017
Volunteer at Technological Activities Week	May.2016

## SEMINARS

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**Quantitative Financial Program** Mar.2018

Organized by **Prof. Kai Xing** in USTC

- Presented for 100 minutes on the topic "the covariance matrix of stocks returns with an application to portfolio selection"

**Tensor Envelope Model and Semiparametric Approach to Envelope** Aug.2018

Organized by **Prof. Lan Liu** in University of Minnesota

- Presented the final report on Tensor Structure Envelope and Semiparametric Approach to Envelope method

**Statistical Challenges in High-Dimensional and Complex Data** Sep.2018

Organized by **Prof. Yang Feng** in University of Columbia

- International workshop covering a wide range of topics including high-dimensional regression, topic modeling, social networks, and more

**Undergraduate Research Program** Oct.2018

Organized by **School of Mathematics** in USTC

- Presented for 30 minutes on "False Discovery Rate Control under Multivariate linear Regression Setting"
- Obtained **A** grade in final evaluation

## OTHER SKILLS AND GENERAL TEST

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- TOFEL iBT: Reading 29, Listening 24, Speaking 23, Writing 25, Total 101
- GRE Verbal 153, Quantitative 169, Analytic Writing 3.5
- R, Python, C++, MATLAB, TensorFlow,  $\text{\LaTeX}$

# Major Courses

Category	Course	Grade
Analysis	Mathematical Analysis A1	89
	Mathematical Analysis A2	92
	Mathematical Analysis A3	95
	Functional Analysis	95
	Real Analysis	92
	Complex Analysis	98
Algebra	Foundation of Algebra	89
	Linear Algebra A1	86
	Linear Algebra A2	80
	Modern Algebra	86
Geometry	Differential Geometry	97
	Analytic Geometry	85
Differential Equations	Differential Equations	97
Probability and Statistics	Probability Theory	90
	Applied Stochastic Processes <sup>[1]</sup>	98
	Mathematical Statistics	93
	Regression Analysis	95
	Multivariate Analysis	95
	Advanced Probability Theory( <b>Graduate Course</b> )	97
	Stochastic Processes <sup>[2]</sup> ( <b>Graduate Course</b> )	98
	Time Series Analysis A	Ongoing
	Linear Statistical Models( <b>Graduate Course</b> )	Ongoing
Computer Science	Data Structures and Database	97
	Computer Programming A	87
	Applied Statistical Software	96
	Mathematical Software	A
	Quantitative Financial Engineering	A
	Foundation of Algorithm	89
	Machine Learning	Ongoing
Research Course	Undergraduate Research Program <sup>[3]</sup>	A

**Note:** [1] a course that concerns the Poisson Process, Renewal Theory, Markov Chains and Continuous-Time Markov Chains

[2] a course that focus on Martingales, Brownian Motion and Ergodic Theorems from the perspective of measure theory

[3] a course that evaluate the performance of undergraduate research result