Lei Shi | Curriculum Vitae

Senior Undergraduate — School of Mathematical Sciences, Nankai University
West Appartment, Nankai University, NO.94, Weijin Road, Nankai District, Tianjin, China 300071
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Education

Undergraduate in Mathematics 2016 – present.
Bachelor of Science(Expected)

Major: Mathematics (Poling Class, the Pilot Scheme of Talent Training in Basic Science)

GPA: 92.58/100.

Ranking: 1/39 in Poling Class of Mathematics

Skills:

- Programming: C/C++, Java, MATLAB, R, LaTeX, Lingo
- Miscellaneous skills: Photoshop

Visiting Research Assistant Jun. 2019 – Sep. 2019

Department of Statistics, Pennsylvania State University

Standard Tests

2019-3	**TOEFL**	105 (Reading 30, Listening 27, Speaking 23, Writing 25)
2019-9	**GRE General Test**	326 (Verbal 157, Quantative 169), Writing 4.0

Awards & Honors

2019	National Scholarship, Ministry of Education, China
2018	National Scholarship, Ministry of Education, China
2019	Outstanding Student in Tianjin Province, Tianjin Municipal Education Commission, China [*17 winners in Nankai University*]
2019	Rixin Scholarship, School of Math Science, NKU, China [*1-2 winners per year in Math School*]
2018	Rixin Scholarship, School of Math Science, NKU, China
2018	Second Prize in 2018 Contemporary Undergraduate Mathematical Contest in Modeling [*Nationwide 3%*]
2017	Po-Ling Scholarship, NKU, China [*top 20%*]
2017	'1987' Math Scholarship, School of Math Science, NKU, China [*top 10%*]

Research Projects

1. ***Sparse PCA: Theoretical Developments with Applications in Biomedical Science***

   Advisor: Professor Lingzhou Xue, Department of Statistics, Pennsylvania State University

- Read literature about the theory and development of sparse PCA. Learned about the mainstream methodology(SPCA, SDP, IT, etc.), theoretical results and drawbacks(consistency, rate of convergence and variable selection, etc.)
- Organizing our work in a relevant paper to formulate SPCA in the projection scheme and utilized tools available to explore its statistical property. See this page for current progress.
- Following recent application of sparse PCA in biostatistics, especially in causal meditation analysis.

2. ***Lasso with its Application in Gene Expression Data*** Mar. 2019 – May. 2019

   Advisor: Professor Xianming Xu, School of Statistics and Data Science, Nankai University

   - Learned R coding to implement algorithms in computational statistics, including various sampling methods, Monte Carlo method, MLE estimation, etc.
   - Learned theories and algorithm implementation of Lasso via coordinate descent algorithm.
   - Combined Lasso and binary classification to determine the effect of gene set on certain diseases.

Academic Activities

1. ***MAPI Data Analytics Skill Survey Statistical Analysis*** Jun. 2019 – Sep. 2019

   Advisor: Professor James Rosenberger(Emeritus), Department of Statistics, Pennsylvania State University

   - Used R to process the survey data collected by MAPI/NISS and made statistical analysis in order to explore the demand for data analytics skills in the manufacturing workforce; wrote a final report about the findings and propose possible suggestion about data analytics skill application for the manufacturing industry.

2. ***Contemporary Undergraduate Mathematical Contest in Modeling*** Sep. 2018

   - Tackled the problem of high temperature resistant clothing designing through thermodynamical models, and establish thermal conduction equations with unknown parameters to depict the model, and perform optimization.

3. ***Seminar Class On "Analysis On Manifolds" by J.R. Munkres(Graduate and Upper Division Level).*** Sep. 2017 – Jan. 2018

   Advisor: Professor Jun Li, School of Mathematical Sciences, Nankai University

   - Studied five chapters of the book as an extension for mathematical analysis and an introduction to differential manifolds.
   - Made several reports about the topics, including the implicit function and inverse function theorem, general integrals, manifolds in $\mathbb{R}^n$

EXPERIENCE

1. ***15th Sino-Singapore Undergraduate Exchange Programme*** Jul. 2018 – Aug. 2018

   - Visited Singapore universities(NTU, NUS, SMU, SUTD) and official institutions (Ministry of Education, PRC Embassy, etc.) as one of the Chinese delegates.
   - Participated in lectures about artificial intelligence and its innovation & application on projects like smart cities, self-driving cars, etc.