Lei Shi| Curriculum Vitae

Senior Undergraduate

School of Mathematical Sciences, Nankai University

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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:** 3.82/4.0, 93.52/100.
- **Ranking: 1/40** in Poling Class of Mathematics
- **Course:** Real Analysis(100), Complex Analysis(99), Functional Analysis(99), Abstract Algebra I,II(98,99), General Topology(96), Classical Statistics with MATLAB Application(99), Statistical Computing(92), Multivariate Statistical Analysis(93), Applied Regression Analysis(92), Representation of Finite Groups(99), etc.
- **Skills:**
  - Programming: C/C++, Java, MATLAB, R, LaTeX, Lingo
  - Miscellaneous skills: Photoshop

Standard Tests

2018-4-15	**TOEFL**	107(Reading 27, Listening 28, Speaking 23, Writing 29)
2019-	**TOEFL**	105(Reading 30, Listening 27, Speaking 23, Writing 25)
2018-10-27	**GRE General Test**	321(Verbal 151, Quantative 170), Writing 4.0

Research Interests

High dimensional statistics, Statistical learning, Robust regression, Machine learning and Deep learning, Non-parametrics, Computational statistics

Awards & Honors

2018 China National Scholarship, Chinese Ministry of Education, China [*top 3%*]

2018 Rixin Scholarship, School of Math Science, NKU, China [*top 3%*]

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. ***Theoretical Guarantee for Sparse PCA*** July 1st – present.

   Advisor: Prof.Lingzhou Xue, Department of Statistics, The 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, etc).
- Studied how authors of popular sparse PCA formulation and methods build their theoretical guarantees(consistency, rate of convergence and variable selection, etc.)
- Studied sparse estimators without theoretical guarantee yet and utilized tools available to explore their statistical property.

Academic Activities

1. ***2018 Contemporary Undergraduate Mathematical Contest in Modeling*** Sep. 2018

   - Tackling the problem of high temperature resistant clothing designing through thermodynamical models
   - Establish thermal conduction equations with unknown parameters to depict the model, and determine the parameters through step iteration algorithm on least square best-fitting principle.
   - Programming on MATLAB to implement and improve the algorithm.

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

   Advisor: Prof. 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 $\mathbb{R}^n$

3. ***COMAP's Mathematical Contests in Modeling.*** Jan. 2019

   - Tackled resources management problems via operation and programming method. Programming using Lingo, in terms of nonlinear programming and data computing.

EXPERIENCE

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