Shenduo Zhang

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Education

Xi'an Jiaotong University Sep. 2017- June 2021
Bachelor of Science in Statistics *Xi'an, Shaanxi, China*

Georgia Institute of Technology Aug. 2019 – Dec. 2019
Visiting Student *Atlanta, Georgia, United States*

Middle School Attached to Northwestern Polytechnical University Aug. 2019 – Dec. 2019
Senior/Junior High school *Xi'an, Shaanxi, China*

Standardized Grade

GPA Sep. 2017 – Present

- Overall (including politic class): 3.61, Ranked $15^{th}/100$
- Major (including *only all math and statistics classes*): 3.80, Ranked $*^{th}/100$
- GPA at *Georgia Institute of Technology*: 4.0

GRE: 325 | Verbal: 157, Quantity: 168, Writing: 3.0 Aug. 28^{th} 2020

TOEFL: 109 | Reading: 28, Listening: 29, Speaking: 24, Writing: 28 Oct. 24^{th} 2020

IELTS: 7.0 | Reading: 7.5, Listening: 7.5, Speaking: 6.5, Writing: 6.0 Jan. 19^{th} 2019

I've taken each of the above tests only once and achieved the score.

Research Experience

High-dimensional Statistics Oct. 2019 – Present
advisor: Vladimir I. Koltchinskii *changed to online due to COVID*

- Introduction to high-dimensional statistical problems as well as their rigorous theory developed with non-asymptotic high-dimensional probabilistic tools. *Primary text: High-dimensional probability, Roman Vershynin (full text).*
- Theory on asymptotic behavior of statistics of spectral distribution of random matrices with typical symmetry ensembles. *Primary text: Topics in Random Matrix Theory, Terrence Tao (full text excluding free probability and the third chapter)*
- Theory and methods of non-parametric estimation and optimality theory about estimation efficiency. *Primary text: Introduction to non-parametric estimation, Alexandre Tsybakov (full text)*

Theory and Applications of Machine Learning Aug. 2019 – Nov. 2019
advisor: Liao Wenjing *Atlanta, Georgia, United States*

- Recovery of PDE solution from noisy data using dictionary learning. *Journal articles*
- Complexity-approximation trade-off and curse of dimensionality in machine learning based on theory of non-parametric estimation. *Introduction to Non-parametric estimation, Alexandre Tsybakov (Part of first and second chapter)*
- Theory about error bounds for approximation capability of deep ReLu Neureul Networks and required complexity. *Journal articles*
- Excess risk bound for regression with ReLu Neureul Networks with proper assumptions to overcome the curse of dimensionality. *Journal articles*

Random Process and Percolation June 2019 – Dec. 2019
advisor: Michael K. Damron *Atlanta, Georgia, United States*

- Random walk, discrete harmonic functions and resistor networks. *Primary text: Random walks and electric networks, Peter G. Doyle and J. Laurie Snell (full text)*
- Concentration and Fourier analysis on hamming cubes, sensitivity of boolean function, percolation model and sensitivity of site percolation. *Primary text: Noise sensitivity of Boolean functions and percolation, Christophe Garban and Jeffrey E. Steif (two thirds of text)*

Skill sets

Languages: R, LaTeX, Python, C#, Mathematica, Matlab, MySQL, HTML/CSS
Developer Utilities: Git, VS Code, R studio, PyCharm, Visual Studio, Linux, Ali Cloud, Keras
Virtual Content Creation: Video production, Adobe Premier Pro, Streaming, Explain Everything Board, OBS

Advanced Classes

A detailed full list including notes and homework can be found on my website.

Advanced class in Mathematics: Stochastic Calculus, Functional Analysis, Matrix Analysis, Real Analysis, Complex Analysis
Advanced class in Statistics: Inference of high dimensional data, Big Data Analysis, Machine Learning, Biostatistics, Financial statistics, Linear Model

Synergistic Activity

Delivery of online courses | *Recording and Streaming.* Jan. 2020 – Present

- Streamed review class (not lecturerd) of calculus to freshman receiving over 10,000 peak live viewers simultaneously online.
- Helped professors to improve delivery of online classes during pandemic.

Lecturered review classes 2018-2019

- Hosting personal website sharing notes and contents for reviewing.
- Organized final preparation class to the statistics majored students in probability, real analysis, matrix analysis and calculus.