Yutao Zhong

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EDUCATION BACKGROUND

Department of Mathematics, Shanghai Jiao Tong University (SJTU) Sept 2015-Present

Bachelor of Science (expected in July 2019), Mathematics & Applied Mathematics

Overall GPA: 3.89/4.00, Major GPA: 4.00/4.00, Ranking: 1/59

Featured courses:	Mathematical Analysis (A) (1)	98/100, Grade A+ (1/59)
	Analytical Geometry and Advanced Algebra	97/100, Grade A+ (1/59)
	Mathematical Analysis (A) (2)	96/100, Grade A+ (1/59)
	Ordinary Differential Equations	96/100, Grade A+ (1/59)
	Real Analysis	98/100, Grade A+ (1/59)

2015-2016 First-class university level scholarship (1/59)

2016-2017 National Scholarship (1/100)

2016-2017 Fan Xuji Chancellor's Scholarship (12/4000+)

2017 Meritorious Winner, American Interdisciplinary Contest in Modeling (10% among candidates)

RESEARCH EXPERIENCE

Research on adaptive MCMC algorithm in infinite-dimensional space | RA | SJTU Sept 2017-Present

*Advisor: **Jinglai Li,** Professor at the Institute of Natural Sciences and Department of Mathematics, SJTU*

- Got familiar with the fundamental theories about MCMC algorithm in finite-dimension space and learned the related numerical algorithm, such as MH-algorithm, IS-algorithm and Adaptive-algorithm, etc.
- Studied the infinite-dimensional analysis and known standard MCMC (like PCN) in field space.
- Designed a new adaptive algorithm in infinite-dimensional space and applied it to numerical simulation.
- Proved the theoretical parts about the algorithm, including the ergodicity of the chain and dimensional independence.

Research on infinite dimensional Bayesian inverse problems | RA | SJTU Jun 2017-Sept 2017

*Advisor: **Jinglai Li,** Professor at the Institute of Natural Sciences and Department of Mathematics, SJTU*

- Got familiar with the Bayesian framework in field space and studied the related theories, such as Besov measures to solve infinite dimensional problems.
- Learned the relevant algorithms (like Variational method and MCMC) to solve inverse problem and designed a new prior (TG-prior) with much better edge-perserving property and other good properties in contrast to Gaussian-prior.
- Designed a simple but efficient algorithm to draw samplers, and further proved the theoretical parts about the algorithm, including the detailed balance and some other theoretical properties.

Research on properties of Boolean Graphs and realization with the aid of PC | RA | SJTU Oct 2016-May 2017

*Advisor: **Tongsuo Wu,** Professor at Department of Mathematics, SJTU*

- Conducted literature review on Boolean graphs, learned classical theories like vertex decomposable and Cohen-Macaulay.
- Self-studied courses about combinatorial commutative algebra, studied simplicial complex and its applications in combinatorial commutative algebra.
- Verified a result about Boolean graphs when n=six, combining theoretical algorithm with specific codes.

ACTIVITIES

SJTU Math Association | Minister Sept 2016-Present

- Tutored students in math and organized contests
- Invited well-known mathematicians and organized lectures

Summer Social Practice Program | Group leader Jun 2016-Jul 2016

- Led a group of four members to investigate safety facilities in Shanghai
- Collected related data to build mathematical model and offered practical solutions applying mathematical modeling

SKILLS AND HOBBIES

Programming Languages: C/C++, MATLAB, Mathematica Hobbies: Table Tennis, Kriegspiel