

TAO TANG

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EDUCATION

Duke University, Durham

Ph.D., Department of Mathematics, Major in Statistics and Applied Math
Advisor: Prof. David. B. Dunson

2018 - 2023

GPA 3.95/4

Peking University, Beijing

Bachelor of Science
Double Major in Mathematics and Biology

2014 - 2018

GPA 3.60/4

GPA 3.85/4

Hong Kong University of Science and Technology, Hong Kong

Exchange Program in Department of Math, School of Science

2017

GPA 4.3/4

SKILLS

Language: Chinese (Native), English (Proficient), Japanese (Entry Level)

Programming: Python, C/C++, R, Pytorch, Matlab, L^AT_EX

RESEARCH INTERESTS

Uncertainty Quantification; Sampling Methods; Monte Carlo Methods; Non-Parametric Bayesian Methods; Stochastic Modeling with application in Biological and Physical science; Manifold Learning; Machine Learning.

WORKING EXPERIENCE

Citadel Securities, Chicago

Quantitative Researcher Intern, Volatility Overlay Group

Build Statistical and Machine Learning models for predicting volume and liquidity of single stock options.

June 2022 - August 2022

Chicago Trading Company, Chicago

Quantitative Researcher, Volatility Overlay Group

Portfolio construction; Alpha Research

September 2023-

RESEARCH EXPERIENCE

Duke University, Durham

Focus on emulation and inferences of dynamical systems using Gaussian Processes and shrinkage methods; non-parametric/parametric Bayesian methods with application and uncertainty quantification; sampling methodologies and application; machine learning and manifold learning [1][2][3][5].

August 2019 - Present

Peking University, Beijing

Build stochastic models of formation and decreasing of HIV Latency; use chemical reaction process to simulate and predict the effects of drugs on HIV reactivation [6].

October 2015 - June 2018

University of Washington, Seattle

Study gene expression pattern and statistics with stochastic models; use jumping process to explain the correlations between genes expression data.

July 2017 - October 2017

PUBLICATIONS

- [1] **Tao Tang**, Simon Mak and David Dunson. *Hierarchical Shrinkage Gaussian Processes for Emulation and Dynamical Recovery*. arXiv preprint arXiv:2302.00755. accepted to SIAM/ASA Journal of Uncertainty Quantification (SIAM JUQ)
- [2] **Tao Tang** and David Dunson. *Bayesian spectrum inference and low-rank approximation of continuous-time Markov chain (CTMC)*. in prep.
- [3] **Tao Tang**, Xiuyuan Cheng, Hau-Tieng Wu and David Dunson. *Adaptive Bayesian Regression on Data with Low Intrinsic Dimension*. in prep.
- [4] Chih-li Song , Irene Ji Yi, Simon Mak, Wenjia Wang, **Tao Tang**. *Stacking designs: designing multi-fidelity computer experiments with confidence*. arXiv preprint arXiv:2211.00268 accepted to SIAM/ASA Journal of Uncertainty Quantification (SIAM JUQ)
- [5] Omar Melikechi, Alex Young, **Tao Tang**, Trevor Bowman, James Johndrow and David Dunson. *Limits of epidemic prediction using SIR models*. Journal of Mathematical Biology 85 (4), 36; 2022
- [6] Xiaolu Guo, **Tao Tang**, Minxuan Duan, Lei Zhang, Hao Ge. *The nonequilibrium mechanism of noise-enhanced drug synergy in HIV latency reactivation*. Iscience, 2022 - Elsevier

TEACHING EXPERIENCE

- Project Manager of DoMath: Duke Summer Undergraduate Research Program** *Summer 2021*
Mathematical and statistical modeling of COVID-19: SIR models and beyond
- Instructor of Calculus II for College Students** *Fall 2019*
Duke Math 122L
- TA of Calculus II for College Students** *Fall 2018*
Duke Math 122L

HONORS AND AWARDS

- School Summer Fellowship** *2019, 2020*
Duke University
- Awards of Excellent Academic Performance** *2015, 2016*
Peking University
- Guanghua Scholarship** *2015*
Peking University