TAO TANG

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EDUCATION

Duke University, Durham *2018 - 2023*
Ph.D., Department of Mathematics GPA 3.95/4
Major in Statistics and Applied Math

Peking University, Beijing *2014 - 2018*
Bachelor of Science GPA 3.60/4
Double Major in Mathematics and Biology GPA 3.85/4

Hong Kong University of Science and Technology, Hong Kong *2017*
Exchange Program in Department of Math, School of Science GPA 4.3/4

SKILLS

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

Programming: Python, C/C++, R, Pytorch, Matlab, LaTeX

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 *June 2022 - August 2022*
Quantitative Researcher Intern

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

Chicago Trading Company, Chicago *September 2023-*
Quantitative Researcher

RESEARCH EXPERIENCE

Duke University, Durham *August 2019 - Present*

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].

Peking University, Beijing *October 2015 - June 2018*

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].

University of Washington, Seattle *July 2017 - October 2017*

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

PUBLICATIONS

[1] **Tao Tang**, Simon Mak and David Dunson. *Hierarchical Shrinkage Gaussian Processes for Emulation and Dynamical Recovery.*arXiv preprint arXiv:2302.00755 under review

[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, **Tao Tang**, Simon Mak . *Multi-level emulator for multi-fidelity simulations.* arXiv preprint arXiv:2211.00268 revision submitted

[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 Undergaduate 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