

Cheng Zhang

CONTACT INFORMATION	Department of Probability and Statistics Peking University Beijing, 100871, China	Tel: (+86) 13621390837 Email: chengzhang@math.pku.edu.cn Webpage: zcrabbit.github.io
RESEARCH INTERESTS	<ul style="list-style-type: none">• Statistics: Scalable Bayesian Inference (e.g., Markov Chain Monte Carlo, Variational Inference), Bayesian Nonparametric Models (e.g., Gaussian Processes), Sparse Modelling• Machine Learning: Probabilistic Graphical Models, Deep Bayesian Learning• Computational Biology: Bayesian Phylogenetic Inference	
EDUCATION	University of California, Irvine, Irvine, CA Ph.D., Computational Mathematics, 2011–2016 <ul style="list-style-type: none">• Dissertation: <i>Scalable Hamiltonian Monte Carlo via Surrogate Methods</i>• Advisors:<ul style="list-style-type: none">* Hongkai Zhao (Computational Mathematics)* Babak Shahbaba (Statistics/Machine Learning) Peking University, Beijing, China M.S., Computational Mathematics, 2008–2011 B.S., Mathematics and Applied Mathematics, 2004–2008	
PROFESSIONAL POSITIONS	Assistant Professor Department of Probability and Statistics, School of Mathematical Sciences, Peking University	Aug 2019 to present
	Postdoctoral Research Fellow Computational Biology Program, Fred Hutchinson Cancer Research Center, Advisor: Frederick A. Matsen IV	Jan 2017 to July 2019
PUBLICATIONS	<ol style="list-style-type: none">1. Improved Variational Bayesian Phylogenetic Inference with Normalizing Flows Zhang, C. In <i>Advances in Neural Information Processing Systems</i>, oral(1.1%), 20202. Non-bifurcating Phylogenetic Tree Inference via The Adaptive LASSO. Zhang, C.*, Dinh, V.* and Matsen F. A. <i>Journal of the American Statistical Association</i> (accepted), 20203. Learning, Using, and Extending Variational Distributions of Phylogenetic Trees. Matsen F. A., Fourment, M., Karcher M., Magee A., Swanepoel, C. and Zhang, C. In <i>Proceedings of the 14th Machine Learning in Computational Biology</i>, 2019.4. Variational Bayesian Phylogenetic Inference. Zhang, C. and Matsen F. A. In <i>Proceedings of the 7th International Conference on Learning Representations</i>, 2019.	

5. Generalizing Tree Probability Estimation via Bayesian Networks.
Zhang, C. and Matsen F. A.
 In *Advances in Neural Information Processing Systems*, **spotlight**(3.5%), 2018.
6. Variational Hamiltonian Monte Carlo via Score Matching.
Zhang, C., Shahbaba, B., and Zhao, H.
Bayesian Analysis, **13**(2), pages 486–506, 2018.
7. Probabilistic Path Hamiltonian Monte Carlo.
 Dinh, V.*, Bilge, A.*, **Zhang, C.***, and Matsen F. A.
 In *Proceedings of the 34th International Conference on Machine Learning*, pp. 1009–1018, 2017
8. Hamiltonian Monte Carlo Acceleration Using Surrogate Functions with Random Bases.
Zhang, C., Shahbaba, B., and Zhao, H.
Statistics and Computing, **27**(6), pp. 1473–1490, 2017
9. Precomputing Strategy for Hamiltonian Monte Carlo Method Based on Regularity in Parameter Space.
Zhang, C., Shahbaba, B., and Zhao, H.
Computational Statistics, **32**(1), pp. 253–279, 2017

AWARDS

Travel Awards

- NeurIPS Travel Award 2018

SELECTED TALKS

- **Invited** The 34th Conference on Neural Information Processing Systems, Vancouver, Canada. *Improved Variational Bayesian Phylogenetic Inference with Normalizing Flows*. Dec, 2020
- **Invited** The 17th Annual Meeting of the Chinese Society for Industrial and Applied Mathematics (CSIAM 2019), Foshan, China. *Modern Bayesian Approaches and Applications in Deep Learning*. Sep, 2019
- **Invited** The Annual Meeting of the Canadian Society of Applied and Industrial Mathematics (CAIMS 2019), Whistler, BC. *Variational Bayesian Phylogenetic Inference*. Jun, 2019
- **Invited** SIAM Conference on Computational Science and Engineering (CSE19), Spokane, USA. *Scalable Bayesian Inference for Inverse Problems*. Feb, 2019
- **Invited** The 32nd Conference on Neural Information Processing Systems, Montreal, Canada. *Generalizing Tree Probability Estimation via Bayesian Networks*. Dec, 2018
- **Invited** Joint Statistical Meeting 2018, Vancouver, BC. *Variational Hamiltonian Monte Carlo via Score Matching*. Aug, 2018
- **Invited** The 34th International Conference on Machine Learning, Sydney, Australia. *Probabilistic Path Hamiltonian Monte Carlo*. Aug, 2017
- **Seminar Talk** AI/ML Seminar, Department of Computer Science, UC Irvine. *Variational Hamiltonian Monte Carlo via Score Matching*. Nov, 2016

TEACHING EXPERIENCE

Teaching Assistant at University of California, Irvine

	<ul style="list-style-type: none"> • Math 2D - Multivariable Calculus • Math 130B - Probability and Stochastic Process • Math 105B - Numerical Analysis • Math 2E - Multivariable Calculus • Math 6G - Linear Algebra • Math 2B - Single Variable Calculus 	<p>Spring 2016</p> <p>Winter 2016</p> <p>Winter 2016</p> <p>Spring 2015</p> <p>Spring 2015</p> <p>Fall 2013 – Spring 2014</p>
REVIEWER	<p>Journals</p> <ul style="list-style-type: none"> • <i>Journal of Machine Learning Research</i> • <i>Statistics and Computing</i> • <i>Bayesian Analysis</i> <p>Conferences</p> <ul style="list-style-type: none"> • <i>ICML 2020</i> • <i>ICLR 2021</i> 	
SKILLS	<p>Statistical and Mathematical Skills</p> <ul style="list-style-type: none"> • Statistics: Bayesian Inference, Generalized Linear Models, Longitudinal Data Analysis, Multivariate Statistical Methods, Probabilistic Graphical Models. • Mathematics: Numerical Analysis, Numerical Optimization, Numerical Linear Algebra, Numerical Partial Differential Equation, Stochastic Processes, Stochastic Differential Equation. <p>Computation Skills</p> <ul style="list-style-type: none"> • Proficient programming in Python, Matlab, R, C/C++. 	
PROFESSIONAL MEMBERSHIPS	<ul style="list-style-type: none"> • Member, American Mathematical Society 	2012–present