

## Cheng Zhang

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CONTACT INFORMATION	Department of Probability and Statistics Peking University Beijing, 100871, China	Tel: (+86) 13621390837 Email: <a href="mailto:chengzhang@math.pku.edu.cn">chengzhang@math.pku.edu.cn</a> Webpage: <a href="http://zcrabbit.github.io">zcrabbit.github.io</a>
RESEARCH INTERESTS	<ul style="list-style-type: none"><li>• Statistics: Scalable Bayesian Inference (e.g., Markov Chain Monte Carlo, Variational Inference), Bayesian Nonparametric Models (e.g., Gaussian Processes), Sparse Modelling</li><li>• Machine Learning: Probabilistic Graphical Models, Deep Bayesian Learning</li><li>• Computational Biology: Bayesian Phylogenetic Inference</li></ul>	
EDUCATION	<b>University of California, Irvine</b> , Irvine, CA  Ph.D., Computational Mathematics, 2011–2016 <ul style="list-style-type: none"><li>• Dissertation: <i>Scalable Hamiltonian Monte Carlo via Surrogate Methods</i></li><li>• Advisors:<ul style="list-style-type: none"><li>* Hongkai Zhao (Computational Mathematics)</li><li>* Babak Shahbaba (Statistics/Machine Learning)</li></ul></li></ul> <b>Peking University</b> , Beijing, China  M.S., Computational Mathematics, 2008–2011 B.S., Mathematics and Applied Mathematics, 2004–2008	
PROFESSIONAL EXPERIENCE	<b>Assistant Professor</b> Department of Probability and Statistics, School of Mathematical Sciences, Peking University	Aug 2019 to present
	<b>Postdoctoral Research Fellow</b> 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"><li>1. Variational Bayesian Phylogenetic Inference. <b>Zhang, C.</b> and Matsen F. A. In <i>Proceedings of the 7th International Conference on Learning Representations</i>, 2019.</li><li>2. Generalizing Tree Probability Estimation via Bayesian Networks. <b>Zhang, C.</b> and Matsen F. A. In <i>Advances in Neural Information Processing Systems</i>, <b>spotlight</b>(3.5%), 2018.</li><li>3. Non-bifurcating Phylogenetic Tree Inference via The Adaptive LASSO. <b>Zhang, C.*</b>, Dinh, V.* and Matsen F. A. <i>Journal of the American Statistical Association</i> (resubmitted), 2018</li><li>4. Variational Hamiltonian Monte Carlo via Score Matching. <b>Zhang, C.</b>, Shahbaba, B., and Zhao, H. <i>Bayesian Analysis</i>, <b>13</b>(2), pages 486–506, 2018.</li></ol>	

5. 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
6. 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
7. 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

### Peking University

- Outstanding Graduates, School of Mathematical Sciences 2011
- Orient Golden Finger Scholarship, School of Mathematical Sciences 2010
- Department Scholarship 2008–2011

## SELECTED TALKS

- **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

- Math 2D - Multivariable Calculus Spring 2016
- Math 130B - Probability and Stochastic Process Winter 2016
- Math 105B - Numerical Analysis Winter 2016
- Math 2E - Multivariable Calculus Spring 2015
- Math 6G - Linear Algebra Spring 2015
- Math 2B - Single Variable Calculus Fall 2013 – Spring 2014

REVIEWER	<ul style="list-style-type: none"> <li>• <i>Statistics and Computing</i></li> <li>• <i>Bayesian Analysis</i></li> <li>• <i>Inverse Problems in Science and Engineering</i></li> </ul>	
SKILLS	<p>Statistical and Mathematical Skills</p> <ul style="list-style-type: none"> <li>• Statistics: Bayesian Inference, Generalized Linear Models, Longitudinal Data Analysis, Multivariate Statistical Methods, Probabilistic Graphical Models.</li> <li>• Mathematics: Numerical Analysis, Numerical Optimization, Numerical Linear Algebra, Numerical Partial Differential Equation, Stochastic Processes, Stochastic Differential Equation.</li> </ul> <p>Computation Skills</p> <ul style="list-style-type: none"> <li>• Proficient programming in Python, Matlab, R, C/C++.</li> </ul>	
PROFESSIONAL MEMBERSHIPS	<ul style="list-style-type: none"> <li>• Member, American Mathematical Society</li> </ul>	2012–present