

# QIU Hongxiang

## Educational Background

- University of Washington 09/2016-present
  - PhD in Biostatistics, In Progress
- The Chinese University of Hong Kong (CUHK) 08/2012-07/2016
  - Degree: Bachelor of Science in Mathematics (07/2016)
  - Minor: Statistics (07/2016)
  - Cumulative GPA: 3.814/4.0 Major GPA: 3.965/4.0
- University of North Carolina at Chapel Hill (*Exchange*) 08/2014-12/2014
  - GPA: 3.940/4.0

## Publication

- Zhou, Y., Qiu, H., Xu S. Modeling Continuous Admixture Using Admixture-Induced Linkage Disequilibrium. *Sci. Rep.* 7, 43054; doi: 10.1038/srep43054 (2017).

## Research Experiences

- PROUD Phase I Trial RA 10/2016-present
  - Summarize and explore data in Phase I.
  - Power calculation of various statistical methods with simulation.
- Generalizing ADMIXUTRE 09/2015-12/2015
  - Generalize the model in ADMIXTURE software by allowing admixture proportion to vary among SNPs with L1-norm regularization on variability.
  - Try to maximize the objective function by alternating updates, ADMM and possibly quasi-Newton acceleration.
- Estimating Recombination Rates 08/2015
  - Working with a PhD student, proposed a Bayesian hierarchical model to estimate recombination rates of DNA segments of an admixed population based on linkage disequilibrium.
  - Gave some suggestions on estimation by MCMC.
- Continuous Admixture Modeling 06/2015-09/2015
  - Working with a PhD student, developed a new method to infer admixture history, CAMer.
  - Wrote all R scripts and the R package (<https://github.com/david940408/CAMer>).
  - Promoted proper use of statistics.
- De-noising Sequences 05/2015-08/2015
  - Tried to de-noise 0, 1 sequences used to infer admixture history by various methods: Haar wavelet, an EM-like algorithm and Bayesian inference with MCMC.
- Flow on Sweeping Networks 10/2014-12/2014
  - Used R to simulate the model in Degond P., Herty M. & Liu J. G. (2014). Flow on sweeping networks. *Multiscale modeling & simulation*, 12(2), 538-565.
  - Tried to connect the simulation with the system of PDEs in this paper and gain insight of this model.
- A Conjecture on Stochastic Dominance 05/2014
  - Tried to prove or disprove the conjecture and disproved it by a simple counterexample.
- EMD-based Algorithm Trading 02/2014-08/2014
  - Used MATLAB to test if some EMD-based trading rules with certain parameters work well on some main stocks in US market.

## Extracurricular Experiences

- Self-Studying Markov Chain Monte Carlo (MCMC) 08/2015
  - Self-studied MCMC with emphasize on application
  - Gave a 40min presentation on introductory MCMC to the graduate students and professors in population genetics group in Shanghai Institutes for Biological Sciences.
- Coursera 08/2014-05/2015
  - Passed all 9 courses in Data Science Specialization (Johns Hopkins University), Machine Learning (Stanford University) and Model Thinking (University of Michigan) with Statements of Accomplishment, if applicable.
- Volunteer Teacher in Musical Empowerment 09/2014-11/2014
  - Taught a middle school student alto saxophone 40min per week as a volunteer.
- Participant of Study Group Instructed by Prof. Raymond Honfu CHAN 02/2014-05/2014
  - Studied a technical analysis book and gave two 30min presentations to Chair of Mathematics.
  - Prepared for the internship in Celestial Asia Securities Holdings Limited (CASH Group).
  - Gained experience in signal processing.
- Math Mentor in CUHK 02/2014-04/2014
  - Helped three freshmen select their majors and become adapted to university life.
- Mainland Undergraduates Orientation 08/2013
  - Planned activities and helped the freshmen integrate into the new study environment.

## Honors & Awards

- College Head's List, 2016-2017 01/2017
- Department/Programme Scholarship, 2016-2017 01/2017
- Dean's List, 2015-2016 07/2016
- Undergraduate Mathematics Scheme 01/2016
- Shaw College Global Exposure Award Scheme, 2014-2015 04/2015
- Heung To Educational Fund Mathematics Scholarship 04/2015
- Reaching Out Award 04/2015
- 1978 Mathematics Alumus Li Sze-lim Scholarships 01/2015
- College Head's List, 2013-2014 01/2015
- Department/Programme Scholarship, 2013-2014 01/2015
- CUHK Golden Jubilee Scholarship for Outgoing Exchange Student, 2014-2015 09/2014
- Dean's List, 2013-2014 06/2014
- Undergraduate Mathematics Scheme 06/2014
- Yasumoto International Exchange Scholarship 06/2014
- Dragon Crowd "SCHIESSER" Scheme 04/2014
- College Head's List, 2012-2013 01/2014
- Department/Programme Scholarship, 2012-2013 01/2014
- Dean's List, 2012-2013 06/2013
- 2nd Place of ATVenture in Harvard Summit for Young Leaders in China 08/2012
- Second Prize of National High School Mathematics League 11/2011
- First Prize of National Middle School Mathematics League 06/2009
- Third Prize of National Middle School Physics League 04/2009

## Working Experiences

- Investigation Team of Chengdu City, Sichuan 12/2013-01/2014
  - Worked as an intern in both Department of Agriculture and Department of Economy trying to get familiar with daily workflow

## Skills

- Programming Languages:
  - Professional: R, MATLAB
  - Proficient: C++, C, Python, Excel
  - Familiar: SAS, Mathematica
- Computer Skills: Markdown, LaTeX, Git, MS Office, Unix OS, Vim
- Language skills: GRE: 327 (V: 157, Q: 170, A: 4.5) Test Date: 03/08/2015  
TOEFL: 114 (R: 30, L: 30, S: 24, W: 30) Test Date: 10/11/2015