

# Zehang Richard Li

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## Contact Information

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## Education

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| <b>University of Washington</b><br>Ph.D. Candidate in Statistics, Machine Learning and Big Data PhD Track<br>Dissertation: Bayesian Methods for Graphical Models with Limited Data<br>Advisor: Tyler H. McCormick | 2013 - Present |
| <b>The Chinese University of Hong Kong</b><br>B.Sc. in Risk Management Science<br>Minor in Mathematics                                                                                                            | 2009 - 2013    |
| <b>University of Washington</b> , visiting student                                                                                                                                                                | Autumn 2012    |
| <b>University of California, Berkeley</b> , visiting student                                                                                                                                                      | Summer 2011    |

## Publications

### In preparation

- [1] **Zehang R Li**, Tyler H McCormick, and Samuel J Clark. Verbal autopsy analysis using OpenVA. *In preparation*, 2017.
- [2] **Zehang R Li**, Tyler H McCormick, and Samuel J Clark. Bayesian joint spike-and-slab graphical lasso. *arXiv:1805.07051*, 2018.

### Submitted papers

- [1] **Zehang R Li**, Yuan Hsiao, Jessica Godwin, Bryan D Martin, Jon Wakefield, and Samuel J Clark. Changes in the spatial distribution of the Under-Five Mortality Rate: Small-area analysis of 122 DHS surveys in 262 subregions of 35 countries in Africa. *Submitted*, 2018.
- [2] **Zehang R Li**, Tyler H McCormick, and Samuel J Clark. Bayesian inference of latent Gaussian graphical models for mixed data. *Submitted*, *arXiv: 1711.00877*, 2018.
- [3] **Zehang R Li** and Tyler H McCormick. An Expectation Conditional Maximization approach for Gaussian graphical models. *Submitted*, *arXiv:1709.06970*, 2017.
- [4] Tsuyoshi Kuniyama, **Zehang R Li**, Samuel J Clark, and Tyler H McCormick. Bayesian factor models for probabilistic cause of death assessment with verbal autopsies. *Submitted*, *arXiv:1803.01327*, 2018.
- [5] Prabhat Jha, Dinesh Kumar, Rajesh Dikshit, Atul Budukh, Rehana Begum, Prabha Sati, Patrycja Kolpak, Richard Wen, Shyamsundar J Raithatha, Utkarsh Shah, **Zehang R Li**, Lukasz Aleksandrowicz, Prakash Shah, Kapila Piyasena, Tyler H McCormick, Hellen Gelband, and Samuel J Clark. Computer versus physician coding of cause of death for Verbal Autopsies: randomised trial of 9374 deaths in 117 villages in India. *Submitted*, 2018.

## Peer reviewed

- [1] Georges Reniers, Sylvia Blom, Judith Lieber, Abraham J Herbst, Clara Calvert, Jacob Bor, Till Barnighausen, Basia Zaba, **Zehang R Li**, Samuel J Clark, et al. Tuberculosis mortality and the male survival deficit in rural South Africa: An observational community cohort study. *PloS one*, 12(10):e0185692, 2017.
- [2] Georges Reniers, Sylvia Blom, Clara Calvert, Alexandra Martin-Onraet, Abraham J Herbst, Jeffrey W Eaton, Jacob Bor, Emma Slaymaker, **Zehang R Li**, Samuel J Clark, et al. Trends in the burden of HIV mortality after roll-out of antiretroviral therapy in KwaZulu-Natal, South Africa: an observational community cohort study. *The lancet HIV*, 4(3):e113–e121, 2017.
- [3] Tyler H McCormick, **Zehang R Li**, Clara Calvert, Amelia C Crampin, Kathleen Kahn, and Samuel J Clark. Probabilistic cause-of-death assignment using verbal autopsies. *Journal of the American Statistical Association*, 111(515):1036–1049, 2016.
- [4] Ngai Hang Chan, **Zehang R Li**, and Chun Yip Yau. Forecasting online auctions via self-exciting point processes. *Journal of Forecasting*, 33(7):501–514, 2014.

## Working papers

- [1] Samuel J Clark, **Zehang R Li**, and Tyler H McCormick. Quantifying the contributions of training data and algorithm logic to the performance of automated cause-assignment algorithms for Verbal Autopsy. *arXiv: 1803.07141*, 2018.
- [2] **Zehang R Li**, Tyler H McCormick, and Samuel J Clark. InterVA4: An R package to analyze verbal autopsy data. *Center for Statistics and the Social Sciences Working Paper, No.146*, 2014.
- [3] Samuel J Clark, Tyler H McCormick, **Zehang R Li**, and Jon Wakefield. InSilicoVA: A method to automate cause of death assignment for verbal autopsy. *Center for Statistics and the Social Sciences Working Paper, No.133*, 2013.

## Talks and Poster Presentations

Bayesian latent Gaussian graphical model

- Topic contributed talk, Joint Statistical Meetings, Vancouver 2018

ECM approach for estimating Gaussian graphical model

- Invited poster, Joint Statistical Meetings, Vancouver 2018

Probabilistic models for verbal autopsy analysis

- Poster, UW Data Science Networking, Seattle 2016
- Poster, Joint Statistical Meetings, Chicago 2016

Software for verbal autopsy analysis

- Invited, VA in CRVS Systems international meeting, Accra, Ghana 2017
- Invited, D4H VA Working Group meeting, Columbus, Ohio 2017
- Invited, WHO VA Working Group meeting, Geneva, Switzerland 2016

Discovering structures in large social network graphs

- Contributed talk, Joint Statistical Meetings, Chicago 2016

- Contributed talk, Joint Statistical Meetings, Seattle 2015  
Forecasting online auctions via self-exciting point processes
- Poster, ISI Young Statisticians' Meeting, Hong Kong 2013

## Work Experience

- Consultant**, Vital Strategies, NY, United States Jun - Dec 2017
- Develop and improve *openVA* software with the 2016 WHO Standard VA Instrument.
  - Assist the integration of verbal autopsy pipeline into civil registration and vital statistics systems.
- Research Intern**, Microsoft Research, Redmond, WA, United States Jun - Sept 2016
- Develop machine learning and Bayesian graphical model procedures for learning competitions patterns among large numbers of notebook and tablet products.
  - Mentors: Matt Goldman and Matt Taddy
- Research Intern**, Census and Statistics Department Hong Kong SAR Jun - Aug 2012
- Design and build hedonic models for CPI calculations of used vehicles.

## Teaching

- Co-Instructor, 2-day short course on “Bayesian Small Area Estimation using complex survey data”, Asian Population Association Conference, Shanghai, China July 2018
- Co-Instructor, 2-day short course on “Bayesian Small Area Estimation using complex survey data”, Population Association of America Annual Meeting, Denver, United States Apr 2018
- Guest Lecturer, STAT 221 Statistical Methods for the Social Sciences Spring 2018
- Instructor, STAT 394 Probability I (rating: 4.3/5) Summer 2017
- TA, STAT 435 Introduction to Statistical Machine Learning (rating: 4.7/5) Spring 2017
- TA, STAT 390 Statistical Methods in Engineering and Science (rating: 3.5/5) Winter 2017

## Software

- R packages for verbal autopsy methods: InterVA4, InterVA5, InSilicoVA, Tariff, openVA
- R package for child mortality methods: SUMMER

## Honors and Awards

- Student Paper Award, The Section on Bayesian Statistical Science of the ASA, JSM 2018
- Travel Award, UW Center for Statistics and the Social Sciences (CSSS) 2016
- Blalock Fellowships, UW Center for Statistics and the Social Sciences (CSSS) 2013
- Mathematical Contest in Modeling (MCM), *Meritorious Winner* 2012
- Dragon Crowd SCHIESSE International Exchange Scholarships 2012
- Faculty of Science Dean's List 2010
- Scholarship for Excellent Mainland Student (four years tuition fee and living expense) 2009 - 2013

## Professional Involvement

Moderator, Statistics in the Community (StatCom) 2016 - Present

Member, New Lecturer Search Committee, Department of Statistics, UW 2017

Department Statistical Consultant 2014

Reviewer, *Statistica Sinica*, *Statistical Analysis and Data Mining*

Professional Societies membership: American Statistical Association, Institute of Mathematical Statistics, International Chinese Statistical Association, International Society for Bayesian Analysis, Population Association Of America, International Union for the Scientific Study of Population

## Language and Skills

Programing: R, SAS, Stata, Matlab, Java, JavaScript, and L<sup>A</sup>T<sub>E</sub>X.

Visualization: Tableau, D3.

Languages: Mandarin (Native), Cantonese (Basic), English(Fluent), and Spanish (Elementary)