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## Education

- 2016–Present **Ph.D. Candidate Biostatistics (Advisor: Peter X.K. Song)**, *University of Michigan*, Ann Arbor, MI
- 2014–2016 **M.S. Biostatistics**, *University of Michigan*, Ann Arbor, MI
- 2009–2013 **B.S. Biology**, *Huazhong University of Science and Technology (HUST)*, Wuhan, China

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## Honors & Awards

- 2019 Rackham Predoctoral Fellowship for Academic Year 2019-2020
- 2019 The International Biometric Society Eastern North American Region's (ENAR) Distinguished Student Paper Award
- 2018 The Michigan Institute for Data Science (MIDAS) Annual Symposium Poster Award of Most Innovative Use of Data
- 2015 Outstanding Academic Performance First-Year Master's Program
- 2015 Certificate in Public Health Genetics (CPHG) Award
- 2013 HUST Excellent Graduate
- 2012 HUST Qiming Academy Outstanding Student Award & First Prize in Accomplishments
- 2011 China National Scholarship

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## Research Experience

- 2016–Present **Doctoral Dissertation Research**, *Streaming Data Analytics and Real-time Regression Analysis*, Ann Arbor, MI
- Developed a new online framework of renewable estimation and incremental inference in generalized linear models and longitudinal data models. This new method performs real-time analysis with current data and summary statistics of historical data, but with no use of any historical subject-level data
  - Developed an R package **RenewGLM**
- 2017 **Data Analyst**, *Tracking Data Analysis*, Ann Arbor, MI
- Established procedures for pre-processing and modeling of high frequency basal body temperature measurements via Hidden Markov Model (HMM), as well as prediction of ovulation by incorporating biorhythm information

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## Work Experience

- 2017–Present **Graduate Student Research Assistant**, *Black Women's Wellness Project*, Ann Arbor, MI
- Conduct randomization procedure achieving balances between intervention and control groups in terms of sample size, geographic location and age
  - Data cleaning and preliminary analysis using SAS

- 2015–2016 **Graduate Student Research Assistant**, *Effect of Contamination on DNA Sequencing Data*, Ann Arbor, MI
- Conducted genotype calling from contaminated DNA sequencing data, and calculated concordance between contaminated and true genotypes
  - Designed simulations to assess the effects of contamination, sequencing depth, minor allele frequency and quality score on genotype calling
- 2015 **CPHG Summer Internship**, *Solving Constrained Optimization Problems via ADMM*, Ann Arbor, MI
- Solved  $L_1$ -regularized equality-constrained generalized linear models via ADMM (Alternating Direction Method of Multipliers) and inexact-ADMM, and developed an R package `glmADMM`
- 2013–2014 **Data Analyst**, *Cancer Genome Research Group, BGI-Shenzhen*, Shenzhen, China
- Developed a pipeline toolbox for analyzing recurrent copy number alternation (CNA)
  - Implemented a calculator for the timing of various stages of tumor progression

## Publications

1. Shen, R., **Luo, L.** and Jiang, H. (2017). Identification of gene pairs through penalized regression subject to constraints. *BMC Bioinformatics*, **18**: 466.
2. Yang, Y., **Luo, L.**, Xu, J.X. et al. (2013). Novel EDA p.Ile260Ser Mutation Linked to Non-syndromic Hypodontia. *Journal of Dental Research*, **92**: 500–506.

### Manuscripts in Revision

3. **Luo, L.** and Song, P.X.K. (2018). Renewable Estimation and Incremental Inference in Generalised Linear Models with Streaming Datasets. *Journal of the Royal Statistical Society: Series B (Statistical Methodology)* (invited revision).
4. **Luo, L.**, She, X.C., Cao, J.X., Zhang, Y.L., Li, Y.J., Song, P.X.K. (2018). Detection and Prediction of Ovulation Time from Body Temperature Measured by YONO Earbud. *IEEE Transactions on Biomedical Engineering* (invited revision).

### Manuscripts in Preparation

5. **Luo, L.** and Song, P.X.K. Renewable Estimation and Incremental Inference with Partial Heterogeneous Streaming Datasets.
6. **Luo, L.** and Song, P.X.K. Regression Analysis of Serially Dependent Streaming Datasets.

## Presentations

1. Renewable Estimation and Incremental Inference in Generalized Linear Models with Streaming Datasets. *Joint Statistical Meetings*, Vancouver, BC, Canada. July 2018. (Poster).
2. Renewable Estimation and Incremental Inference in Generalized Linear Models with Streaming Datasets. *A9.com, Inc.*, Palo Alto, CA. April 2018.

## Technical Skills

**Programming:** R, SAS, C++, Python, SQL, Matlab, TeX

## Software

R packages: `glmADMM`, `RenewGLM`