Lijia Wang

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EDUCATION

The University of Chicago — **Chicago, IL**
Bachelor of Arts in Statistics and Biological Sciences with Quantitative Biology specialization   Expected, June 2021

- Relevant Coursework**:** Analysis in Rn, Statistical Theory and Methods; Applied Regression Analysis, Math Methods (R); Intro to Math Probabilities (Mathematica); Computer Science with Applications (python, SQL, C);
- Languages and Tools**:** R, Python, SQL (proficient); Bash Script, C, Mathematica (familiar)
- Dean's List, 2017-2019; GPA 3.71

RESEARCH EXPERIENCE

Department of Statistics and Department of Human Genetics, University of Chicago — **Chicago, IL**
Research Assistant, Matthew Stephens Lab — Jan 2020 – present

- Evaluate different variable selection methods on genetic datasets with varying degrees of correlation
- Generate and test functions and modules in python and R for Dynamic Statistical Comparisons program to evaluate dataset-specific fit of regression models
- Record and create reproducible pipelines for model fitting

Department of Pediatrics, University of Chicago Medicine — **Chicago, IL**
Bioinformatic Research Assistant, Xinan Yang Lab — Jun 2018 – Dec 2019

- Constructed a python- and R-based ATAC-seq analysis pipeline to investigate change in chromatin state and its correlation to differential binding of transcription factors using principal component analysis and t-SNE
- Revised and applied R-based dynamic network analysis model to predict tumor-initiating enhancers

Department of Organismal Biology and Anatomy, University of Chicago — **Chicago, IL**
Research Assistant, Neil Shubin Lab — Apr 2018 – Dec 2019

- Investigated enhancer regulation in evolutionary development of the spiral valve in cartilaginous fish
- Built cDNA library, designed RNA probes, and constructed a gut tissue structure library of sharks and skates

Royal Botanic Gardens, Kew — **London, United Kingdom**
Phylogenomic Studies Intern, Research Mentor: Olivier Maurin — Jun 2019 – Aug 2019

- Processed and generated viable libraries from silica-dried and herbarium samples of angiosperm family *Combretaceae* for next generation sequencing
- Hypothesized and tested phylogenetic trees using quartet analysis to infer types of evolutionary pressure

Business School of Management, University of Shanghai for Science and Technology — **Shanghai, China**
Research Assistant, Translator, Xiao'an Gu Lab — Sept 2018

- Analyzed FDIC data on liquid assets and liabilities ratio for commercial banks to generate a risk-warning model
- Translated reference materials and the project article from English to Chinese and Chinese to English

PUBLICATIONS AND PRESENTATIONS

- **Wang, L.**, Carbonetto, P., Stephens, M., "SuSiE vs. Mr.ash analysis on GTEx data containing Varying Degrees of Correlation", *BSCD Quantitative Biology Research Symposium 2020 (Oral Presentation)*
- **Wang, L.**, Maurin, O., "Phylogenomic Analysis on Combretaceae using angiosperm-wide target enrichment", *UCISTEM Undergraduate Research Symposium 2019 (Oral Presentation)*
- Gu, X.**,** Rong, L, **Wang, L.**, Xi, X., Yuan, Y. "A Study on the Effect of Volatility in Liquid Assets and Liabilities Ratio in Bank Failure -- Experience and Evidence from United States Banking" (Article under review)
- **Wang, L.,** Wang, Z., Yang, X."A systematic discovery of MYC and MYCN binding at risk-dependent enhancers in Neuroblastoma", *BSCD Undergraduate Research Symposium 2018 (Oral Presentation)*
- Ali, M., Gundamraj, S., Kaur, T., Morris, S., Puri, S., Singh, R., Singh, V., Smith-Feinburg, L., **Wang, L.**, Tuinstra, R. and Peoples, R., 2014. "Modeling the Alcohol Binding Site of the NMDA Receptor Using the GluA2-receptor Structure (LB110)". *The FASEB Journal*, 28(1_supplement), p.LB110.

TEACHING EXPERIENCE

Fundamentals of Ecology and Evolution   **University of Chicago, Biological Sciences Collegiate Division**
Teaching Assistant   Jan 2019 – March 2019

- Prepared weekly computer lab sessions for the course; graded student work and exams
- Instructed fundamentals of data analysis and modeling using R and its application in ecological studies, including population genetics, phylogenetic analysis, and disease dynamics

Introduction to Quantitative Modeling in Biology   **University of Chicago, Biological Sciences Collegiate Division**
Lecture Teaching Assistant   March 2020 – June 2020

- Held office hours and monitored piazza forum to answer questions on both lecture and computer lab material
- Answered questions on statistical modeling in R, including probabilities, Markov Chains, and ordinary differential equations

COMPUTATIONAL PROJECTS

- *GOM2SOM*: used grade of membership model analysis to recreate self-organizing map identifications of spatial discriminator genes (R, python)
- *COVIDpeak*: constructed modified SIR model that incorporate varying degrees of self-quarantine to predict the peak number of COVID-19 patients during the pandemic in New York City (python)
- *MappingTrends*: analyzed and projected Twitter trends onto GIS map; constructed Django query interface (python)
- *linalg & statgen*: implementation of common linear algebra algorithms and statistical genetics methods in R; code organized through workflowR (R)
- *ReScience Reproducibility Challenge* (code review): reviewed and made suggestions to "Reproducibility report: Identifying essential genes by mutagenesis" (Broman, K., 2020) (R)

GRANTS AND FELLOWSHIPS

- University of Chicago Biological Sciences Collegiate Division Quantitative Biology Fellowship, May 2020
- University of Chicago Jeff Metcalf Fellowship, May 2019
- University of Chicago Biological Sciences Collegiate Division Summer Fellowship, Summer 2018

LEADERSHIP AND ACTIVITIES

University of Chicago Kendo Club
Captain, President   Sept 2017 – present

- Lead beginner and advanced practice every week; research and implement training regimen
- Coordinate joint practices and seminars Greater Chicago Area dojo's and the Midwest Kendo Federation
- Organize the annual UChicago Kendo Tournament, a student-run tournament for all Chicago dojo's

University of Chicago Japanese Animation Society
President, Head of UChi-con   Sept 2017 – present

- Head outreach to businesses in the animation and entertainment industry to sponsor the club and annual UChi-con
- Organize logistics for UChi-con, including reservation, promotion, and delegation of tasks to officers and volunteers

University of Chicago Society of Women in Mathematics
Member   Sept 2019 – present

- Hold weekly meetings and seminars with mathematical societies at the undergraduate and graduate math programs
- Tutor students in introductory calculus courses in basics of mathematical proof

University of Chicago Club Sports Financial Committee
Member   April 2019 – present

- Evaluate petitions and distribute quarterly allocations to each sports club