

Education

University of Colorado-Boulder | Institute for Behavior Genetics

Start from Aug. 2023

Ph.D. in Behavioral, Psychiatric, and Statistical Genetics, Expected May. 2028

- Advisor: Dr. Matthew C. Keller
- Research Area: Statistical Models and Methods in Genetics

University of Colorado-Boulder

Start from Aug. 2024

MS in Applied Mathematics, Expected May. 2027

- Research Area: Disease Prediction Model with GNN

Wake Forest University

Aug. 2021 - Aug. 2023

M.A. in Psychology

- Advisor: Dr. S. Mason Garrison
- Research Area: Statistical Methods and Behavior Genetics
- Master's Thesis:

Family structures impact statistical power of mitochondrial DNA effect estimation under a novel extended-pedigree model

Shandong University

Sep. 2016 - June. 2020

B.A. in Sociology

- First-Year Major: Software Engineering
- Undergraduate Thesis (Awarded Shandong University 2020 Outstanding Undergraduate Thesis):

The Relationship between Social Media, Pornography, and Self-Objectification-An investigation based on structural equation modeling

The University of Queensland

Jan. 2019 - July. 2019

Study Abroad

- Courses: Social Psychology, Attitudes and Social Cognition, Learning and Cognition, Psychological Methodology III

Research Interests

Methods	Statistical Genetics; Computational Genetics; Genomics; Genetically-Informed Designs
Content	Non-WEIRD Data; Inequity; Applied Data Science

Publication and Manuscripts

- **Lyu, X.**, Balbona, J., Chen, T. & Keller, M. C. (Submitted to *Behavior Genetics*) Multivariate SEM-PGS Model: Using Polygenic Scores to Investigate Cross-Trait Indirect Genetic Effects
- **Lyu, X.**, Hunter, M. D., Burt, S. A., Good, R., Carroll, S. L., & Garrison, S. M. (2024) (In press at Behavior Genetics). Detecting mtDNA effects with an Extended Pedigree Model: An Analysis of Statistical Power and Estimation Bias. *bioRxiv*, 2024–12. [link](#)
- Garrison, S. M., Hunter, M. D., **Lyu, X.**, Trattner, J. D., & Burt, S. A. (2023). BGMisc: An R Package for Extended Behavior Genetics Analysis. *Journal of Open Source Software*.
- **Lyu, X.** (2023). Pedigree Structures Impact Statistical Power of MtDNA Effects Estimation (*Master's Thesis, Wake Forest University*). Available from ProQuest Dissertations & Theses A&I
- **Lyu, X.** & Garrison, S.M.(2023). Effects of Genetic Relatedness of Kin Pairs on Univariate ACE Model Performance. *Twin Research and Human Genetics*, 26(4-5), 257-268. doi:10.1017/thg.2023.40
- Garrison, S.M., Robertson, H., Trattner, J., McKinzie, L., **Lyu, X.** & Rodgers, J.L.. (2022). Using genetically-informed designs to test causal claims without experiments: Discordant-Sibling designs and applications. Revise and resubmit to *AMPSS*.

Research Talks

Lyu, X., Balbona, J., Kim, Y. & Keller, C.M., Multivariate SEM-PGS Model: Using Polygenic Scores to Demystify Cross-Trait Genetic Nurture

June. 2024

Talk Given at Symposium at the 54th Behavior Genetics Association Annual Meeting.

London, United Kingdom

Lyu, X. & Noemie Valenza-Troubat. GitHub Tutorial Workshop at IBG

Nov. 2023

Presentation Given at StatGen Meeting at IBG

Boulder, US

Lyu, X. Genetic Nurture: New Insights from Family Design in Post-GWAS Era

Guest Lecture in PSYC 3102-Behavior Genetics Course

Nov. 2023

Boulder, US

Lyu, X. & Garrison, S.M. Effects of Genetic Relatedness of Kin Pairs on Univariate ACE Model Performance.

Talk Given at the Equinox Conference 2023

Sep. 2023

Online

Garrison, S.M., **Lyu, X.**, Hunter, M.D., Rodgers, J.L, Smith, K.R., Coon, H., & Burt, S.A. Analyzing extended cousin similarity to unravel the mystery of mtDNA and longevity. In Burt, S.A. (Chair), A new extended pedigree model for quantifying the contributions of mitochondrial DNA.

June. 2023

Talk Given at Symposium at the 53rd Behavior Genetics Association Annual Meeting.

Murcia, Spain

Hunter, M.D., **Lyu, X.**, Garrison, S.M., Rodgers, J.L, Smith, K.R., Coon, H., & Burt, S.A. Modeling mtDNA Effects from Extended Pedigrees in the Utah Population Database. In Burt, S.A. (Chair), A new extended pedigree model for quantifying the contributions of mitochondrial DNA.

June. 2023

Talk Given at Symposium at the 53rd Behavior Genetics Association Annual Meeting.

Murcia, Spain

Lyu, X., Hunter, M.D., Rodgers, J.L, Smith, K.R., Coon, H., Burt, S.A., & Garrison, S.M. Statistical power analysis on mtDNA effects estimation. In Burt, S.A. (Chair), A new extended pedigree model for quantifying the contributions of mitochondrial DNA.

June. 2023

Talk Given at Symposium at the 53rd Behavior Genetics Association Annual Meeting.

Murcia, Spain

Lyu, X. & Garrison, S.M. Leveraging the China Family Panel Study: An Estimation of Height Heritability Using Preliminary Kinship Links

June. 2022

Talk Given at the Quantitative Methods Section of Behavior Genetics Association 2022 Annual Meeting

Los Angeles, US

Lyu, X. Social Media Use Predicts Increased Self-objectification through Social Comparison.

Oct. 2019

Oral Presentation Earned the 2nd prize of Outstanding Paper at 11th Chinese Psychologist Conference

Nanjing, China

Research Posters

Lyu, X., Balbona, J., Chen, T., Kim, Y. & Keller, C.M. Multivariate SEM-PGS Model: Using Polygenic Scores to Investigate Cross-Trait Indirect Genetic Effects

Nov. 2024

Poster Presented at American Society of Human Genetics 2024 Annual Meeting

Denver, US

Online Poster Presented at Behavior Genetics Association 2022 Annual Meeting McKinzie, L, **Lyu, X.** & Garrison, S.M. Leveraging the power of sibling data to untangle the relationship between ADHD, SES, and academic achievement

June. 2022 Los Angeles, US

Milhollen, M., **Lyu, X.** & Garrison, S.M. The China Family Panel Study: An Opportunity to Combat WEIRDNESS in Behavior Genetics

June. 2022

Online Poster Presented at Behavior Genetics Association 2022 Annual Meeting

Los Angeles, US

Lyu, X. & Garrison, S.M. Leveraging the China Family Panel Study: An Estimation of Height Heritability Using Preliminary Kinship Links

April. 2022

First-Year Project Poster Session for Psychology MA at Wake Forest University

Winston Salem, US

Lyu, X. The process towards self-objectification: The role of social comparison and body surveillance in the relationship between social media use and body shame.

Feb. 2020

Poster Accepted at Society of Personality and Social Psychology 2020 Annual Convention

New Orleans, US

Software

Garrison, S. M., Hunter, M. D., **Lyu, X.**, Trattner, J. D., & Burt, S. A. (2023). BGMisc: An R Package for Extended Behavior Genetics Analysis (1.0.1). [Computer software] <https://cran.r-project.org/web/packages/BGMisc/index.html>

Lyu, X. & Garrison, S.M.(2022). ACESimFit: ACE Kin Pair Data Simulations and Model Fitting. [Computer software] <https://CRAN.R-project.org/package=ACESimFit>

Teaching Experience

University of Colorado at Boulder

Teaching Assistant at Psychology Department

August. 2023 - Dec. 2023

- Teaching Assistant for PSYC 3102-Behavioral Genetics

Wake Forest University

Teaching Assistant at Psychology Department

August. 2021 - May. 2022

- Courses: Methods in Psychological Research (2021 Fall; 2022 Spring), Personality (2021 Fall), Research in Social Psychology (2022 Spring), Mass Testing (2021 Fall; 2022 Spring)

Working Experience

Tencent

UX Researcher at Interactive Entertainment Group

Jan. 2021 - July. 2021

- Conducted user experience surveys, extracted user back-end data, analysed data integrally and create data analysis report

Kwai

UX Research Intern at Data Analysis Department

Sep. 2020 - Jan. 2021

- Optimized the data cleaning/data analysis process using R, and wrote reusable data cleaning/weighting scripts to increase the efficiency of the data processing process by over 50% and improve the accuracy of the data processing workflow.

Beijing Normal University

Research Assistant at State Key Laboratory of Cognitive Neuroscience and Learning

June. 2020 - Sept. 2020

- Used R, Python and other tools to realize data collection, data extraction, data cleaning, data analysis, data visualization for various projects in the lab.

Honors & Awards

Scholarship	2023 Diversity Recruitment Fellowship from Pysc & Neuro Department of CU-Boulder(\$3750)	Sept. 2023
Award	2023 Behavioral Genetics Annual Conference Travel Award (\$350)	June. 2023
Scholarship	Wake Forest University Research Assistantship Scholarship (\$50871)	June. 2022
Scholarship	Wake Forest University Teaching Assistantship Scholarship (\$50573)	August. 2021
1st Class	Shandong University 2020 Outstanding Undergraduate Thesis	July. 2020
2nd Prize	Outstanding Paper of 11th Chinese Psychologist Conference	Oct. 2019
1st Class	Overseas Study Scholarship of Shandong University (~\$450)	Oct. 2019
2nd Prize	The 4th China College Students' Internet-Plus Innovation and Entrepreneurship Competition	Nov. 2018
2nd Class	Scholarship for Outstanding Students (~\$300)	Oct. 2018
2nd Class	Scholarship for Outstanding Students (~\$300)	Oct. 2017
2nd Prize	2017 Enactus Entrepreneurial Action & Social Innovation Competition (China Region)	May. 2017

Skills

Data-Related Skills	Quantitative/Qualitative Data: Data Collection, Large-scale Data Management, Text Analysis, Reproducible Data Analysis
Coding Languages	Python, R, LaTeX, SQL, Shell
Softwares	Git, Matlab, MAXQDA, Visual FoxPro, Microsoft Office, SPSS
Standard Tests	TOEFL 110, GRE General 326, GRE Psychology 760