Xinyu Guo

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EDUCATION

University of Southern California — Los Angeles, CA
Doctor of Philosophy, Computational Biology and Bioinformatics — Current
- Andrew J. Viterbi Fellowship

Johns Hopkins University — Baltimore, MD
Master of Science, Biostatistics, GPA 3.97/4.0 — August 2020 - May 2022
- Member of the Delta Omega Public Health Honorary Society

Washington University in St. Louis — St. Louis, MO
Bachelor of Art, Mathematics Major & Computer Science Minor, GPA 3.89/4.0 — August 2018 - May 2020
- Cum Laude
- Dean's List

East China University of Science and Technology — Shanghai, China
Mechanical Engineering Major, GPA 3.7/4.0 — Sep 2016 - June 2018
- China National Scholarship
- Highest Academical Scholarship of Each China University of Science and Technology

University of California in Berkeley, Summer Institute — Berkeley, CA — June – August 2017

RESEARCH EXPERIENCE

Lab Member, Statistical Genetics and Genomics Studies — Los Angeles, CA
Advisor: Dr. Liang Chen, University of Southern California — Aug 2022 – Present
- Analyzing cell cycle phases distributions with single cell RNA-seq data at tissue-specific and cell type-specific level
- Accurately predicting cell cycle phases with single-cell RNA-seq data
- Analyzing disease-related alternative splicing at cell-type level

Lab Member, Statistical Genetics Studies — Baltimore, MD
Advisor: Dr. Nilanjan Chatterjee & Dr. Diptavo Dutta, Johns Hopkins University — Oct 2020 – Present
- Developed a cross-tissue subset-based meta-analysis method (CSTWAS) to identify a set of potential "active" tissues with improved power
- Integrating genome-wide association study (GWAS) results with single-cell ATAC-seq data to interpret etiology for human diseases at the cellular level

Research Assistant, Statistical Genomics Studies — Baltimore, MD
Advisor: Dr. Hongkai Ji & Dr. Eneda Toska, Johns Hopkins University — Feb 2021 – Present
- Analyzing RNA-seq and ChIP-seq/ATAC-seq data: Align and map sequence reads to the genome; Implement downstream analysis such as differential analysis, gene set enrichment analysis, and motif analysis
- Elucidating how transcriptional and epigenetic regulators mediate hormone-driven cancer tumor resistance to therapeutics

Research Assistant, Alzheimer's Disease Biomarkers — Baltimore, MD
Advisor: Dr. Chenguang Wang & Dr. Zheyu Wang, Johns Hopkins University — Aug 2020 – Oct 2022
- Created a R package to collect Alzheimer's Disease biomarkers form BIOCARD, NACC, and ADNI databases, and create an analysis dataset

Researcher Assistant, Respiratory Failure Prediction — St. Louis, MO
Advisor: Dr. Andrew Michelson, Washington University in St. Louis, Institute for Informatics — June 2020 – Dec 2020
- Modeled with lasso and logistic regression to predict respiratory failure probability of COVID-19 tested patients. This model is implemented in the Barnes-Jewish Hospital Electronic Health Record system to early identify patients' risks for respiratory decompensation, facilitating timely resource deployment

Researcher, Bootstrap Method Research — St. Louis, MO
Advisor: Dr. Todd Kuffner, Washington University in St. Louis — May 2019 – May 2020
- Investigated the properties of bootstrap method in R and visualizing its resampling process and evaluated a new method to smooth data density curve and focusing on finding an optimal bandwidth

TECHNICAL SKILLS

- Computer languages: R, Python, Java, HTML, CSS, Java Script, Latex, MATLAB, SQL
- Computer programs: Cluster Computing, SolidWorks, Auto CAD, Microsoft Office, Wind, Amazon AWS
- Other: Shiny App Building, Statistical Model Building, Web Design, Data Collection from APIs

PAPERS & PUBLICATIONS

- **Subset-based method for cross-tissue transcriptome-wide association studies improves power and interpretability.**
  Guo, X., Chatterjee, N, Dutta, D.
  (doi: https://doi.org/10.1101/2023.01.11.23284454)
- **PI3K pathway regulates AR-dependent transcription in breast cancer through the epigenetic regulator KMT2D.**
  Kittane, S*., Ladewig, E*., Arruabarrena-Aristorena, A*., Guo, X^., Sallalku, M^., Karthaus, W., Blawski, R., Ji, H., Leslie, C., Sawyers, C., Toska, E#.
  *^ these authors contributed equally #corresponding
  (Manuscript in submission)
- **SMYD2 Regulates Chromatin Modifier KMT2D in ER+/PIK3CA Mutant Breast Cancer.**
  Blawski, R., Sallaku, M., Guo, X., Kittane, S., Scaltriti, M., Luo, M., Toska, E.
  (Manuscript in submission)

LEADERSHIP AND COMMUNITY INVOLVEMENTS

Founder, China EYE Public Welfare — Shanxi, China
June 2016 – Present

- Founded an NGO with more than 50 people and raised a donation online while holding charity book fairs in schools and parks
- Went to middle schools in impoverished areas and donated 100 brand new desks with many other teaching equipment

HONORS AND CERTIFICATIONS

- Be elected a member of the Alpha chapter of the Delta Omega Society—Honorary Society in Public Health (May 2022)
- Present at the Second Annual Data Science Workshop at Augusta University (October 2021)
- Poster Presentation in MSSISS at University of Michigan (February 2020)
- Summer Undergraduate Research Award (Summer 2019)
- Poster Presentation in Undergraduate Research Symposium (November 2019)
- Math tutor of Washington University in St. Louis Arts & Science school (August 2019)
- First prize in the 7th Advanced Graphing Technology and Innovation Design Competition (June 2017)
- Outstanding Student Leaders of East China University of Science and Technology (June 2018)
- Professional Certification of Auto CAD Graphing
- Patent—Multifunctional Shared Printer [201821510016.7]; Patent—Portable Shared Printer [201821494888.9]

Personal Website: https://www.brian-guo.com
GitHub: https://github.com/Thewhey-Brian