

Shu (Lisa) Liao

4949 W Pine Blvd Apt 13R, MO, 63108 | 857-540-9197 | lisa.liao@wustl.edu

EDUCATION

Washington University in St. Louis

Third Year Ph.D. candidate in Computer Science

St. Louis, MO
Sep 2021-Present

Washington University in St. Louis

B.S. in Computer Science

St. Louis, MO
Sep 2017-May 2021

RESEARCH EXPERIENCE

Center For Genome Sciences and Systems Biology

Graduate Research Assistant

St. Louis, MO
Sep 2021-Present

- Conducted statistical analysis for the Long Life Family Study Cohort (LLFS), including GWAS, TWAS, and rare variant analysis for 11 cardiovascular traits.
- Performed extensive quality control on WGS and chip genotypes from the Framingham Heart Study (FHS), which was used as the replication cohort in our manuscript.
- Implemented and maintained code for phenotype covariates adjustment.
- Explored machine learning models for predicting complex traits from genomic and transcriptomic data.
- Presented posters at 2 conferences, and participated in manuscript preparation and submission for 1 paper.

Center For Genome Sciences and Systems Biology

Undergraduate Research Assistant

St. Louis, MO
May 2019-May 2021

- Inferred yeast transcription factor activity from observed gene expression levels across various conditions with matrix factorization to gain a deeper understanding of cellular state.
- Reformatted microarray and ChIP expression data for transcription factor network construction and parameter inference.
- Implemented network construction module and inference pipeline using Python on a HPC cluster.
- Visualized and interpreted results with python and R, and deliver progress reports in lab meeting weekly.

Washington University in St. Louis, Department of Biological Sciences

Undergraduate Research Assistant

St. Louis, MO
Jan 2021-May 2021

- Engaged in analysis and annotations of unexplored regions of *Drosophila Bipectinata*.
- Utilize BLAST, BLAT, Genome Browser, RepeatMasker, Genscan, Clustal, NCBI and other genomic database, gene prediction or comparative analysis tools to explore next-generation sequencing data.

POSTER PRESENTATIONS

Acharya, S., **Liao, S.**, Jung, W., Kang, E., Moghaddam, V.A., Feitosa, M., Wojczynski, M.K., Lin. S., Anema, J.A., Schwander, K., O'Connell, J., Province, M., Brent, M.R. (2023, November). *Multi-omics Integration to Identify Genes Affecting Cardiovascular Diseases Related Traits*. Poster presented at the Annual Conference of the American Society of Human Genetics (ASHG), Washington DC.

Acharya, S., **Liao, S.**, Jung, W., Kang, E., Moghaddam, V.A., Feitosa, M., Wojczynski, M.K., Lin. S., Anema, J.A., Schwander, K., O'Connell, J., Province, M., Brent, M.R. (2023, November). *Multi-omics Integration to Identify Genes Affecting Cardiovascular Diseases Related Traits*. Poster presented at the Annual Scientific Meeting of the Gerontology Society of America (GSA), Tampa, FL.

TEACHING EXPERIENCE

Washington University in St. Louis, Department of Computer Science

Graduate Assistant Instructor – one semester

St. Louis, MO
Sep 2023-Present

- Presented 3 lectures on Gibbs sampling and systems biology.

- Held weekly office hours and monitored online discussion boards to help students in resolving questions concerning course material for Computational Biology.
- Managed communications with student graders and created grading guidelines and expectations.

Washington University in St. Louis, Department of Computer Science

St. Louis, MO

Undergraduate Teaching Assistant – two semesters

Jan 2019-Dec 2020

- Held weekly office hours to help students in resolving questions concerning course material for Rapid Prototype Development & Creative Programming and Introduction to Data Science.
- Assisted students in trouble shooting HTML, PHP and Javascript web applications and evaluate student work to provide feedback in grades and comments.

PUBLICATIONS

Acharya, S., **Liao, S.**, Jung, W., Kang, E., Moghaddam, V.A., Feitosa, M., Wojczynski, M.K., Lin, S., Anema, J.A., Schwander, K., O'Connell, J., Province, M.A., Brent, M.R., *Multi-omics Integration to Identify Genes Affecting Cardiovascular Diseases Related Traits*. **Submitted**

Moghaddam, V.A., **Liao, S.**, Acharya, S., Jung, W., Shwaiger-Haber, M., Shriver, L.P., Saccone, N., Daw, E.W., Thyagarajan, B., Christensen, K., Patti, G.J., Brent, M.R., Province, M.A., *A Multiomics Workflow to Elucidate the System Level Landscape of Healthy Insulin Sensitivity in Elderly Population with Extreme Longevity Ancestral Background*. **In-Prep**