Zeyun Lu

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Education	University of Southern California Doctor of Philosophy in Biostatistics	09/2019 - Present
	University of California, San Diego Master of Science in Statistics	09/2015 - 12/2016
	University of California, Los Angeles Bachelor of Science in Mathematics/Economics	09/2012 - 09/2014

Professional Experience

Graduate Research Assistant — 08/2020 - Present — Los Angeles, CA
Department of Population and Public Health Sciences
Keck School of Medicine, USC
Mentor: Dr. Nicholas Mancuso

- Developed a gene fine-mapping method (ME-FOCUS) for complex traits using summary-based data and reference panels of multi-ethnic groups.
- Performed Proteome-Wide Association Studies (PWAS) to detect mRNA-free protein mediation genes for complex traits.
- Constructed *cis*-protein Quantitative Loci reference panel using FUSION pipeline.

Statistician — 04/2017 - 06/2019 — San Diego, CA
Alzheimer's Therapeutic Research Institute (ATRI)
Keck School of Medicine, USC
Mentor: Dr. Rema Raman and Dr. Michael Donohue

- Participated as Biostatistician in study teams of several Alzheimer's Disease (AD) clinical trials and observational studies such as AD Neuroimaging Initiative 3 (ADNI3), Anti-Amyloid Treatment in Asymptomatic AD (A4), and Longitudinal Early-Onset AD Study (LEADS).
- Designed and generated different study reports for ADNI3, A4, and LEADS. Reports include but not limited to performing data analysis with mixed models, investigating, data anomalies, and implementing patient randomization.
- Designed, built, and administered R Shiny projects that created dynamic online clinical data reporting system and risk-based monitoring system for ADNI3.
- Mentored student intern in R Shiny, clinical trials, and statistical analysis.

Mathematics Graduate Research Internship — 03/2016 - 06/2016 — 09/2016 - 12/2016 — La Jolla, CA
Department of Mathematics
University of California, San Diego
Mentor: Dr. Anthony C. Gamst

- Analyzed several clinical trials data with visualization, tabulation, and statistical methods such as Linear Regression, Logistic Regression, and ANOVA etc.
- Investigated data errors and proposed fixing schemes.

Awards and Fellowship

Keck School of Medicine/Graduate School Fellowship	2019/2020
Outstanding Overall Performance in Biostatistics Screening Exam	08/2020

Articles

1. *Integrative genomic analyses identify susceptibility genes underlying COVID-19 hospitalization.* Pathak GA, Singh K, Miller-Fleming TW, Wendt FR, Ehsan N, Hou K, Johnson R, <u>Lu Z</u>, Gopalan S, Yengo L, Mohammadi P, Pasaniuc B, Polimanti R, Davis LK, Mancuso N. **Nature Communication**. July, 2021.

Posters & **Abstracts**	3. *Integrative analyses identify genes and their functional consequences underlying COVID-19 hospitalization.* Singh K, Pathak G, Miller-Fleming T, Wendt F, Ehsan N, Hou K, Johnson R, <u>Lu Z</u>, Gopalan S, Yang L, Mohammadi P, Pasaniuc B, Polimanti R, Davis L, Mancuso N. **Molecular Genetics and Metabolism**. April, 2021.
	2. *Brain Amyloid Burden, Sleep, and Circadian Rest/Activity Rhythms: Screening Findings from A4 and LEARN.* Rosenberg PB, Zipunnikov V, <u>Lu Z</u>, Raman R, Carlsson CM, Mintzer JE, Marshall GA, Porsteinsson AP, Yaari R, Wanigatunga SK, Romano C, Wu MN, Aisen PS, Sperling RA, Spira AP. **Alzheimer's & Dementia**. November 2018.
	1. *An Open-source Implementation of Data Standards for Alzheimer's Disease Clinical Trials.* Sun CK, Donohue M, Ernstrom K, Jiang Y, <u>Lu Z</u>, Aisen P, Raman R. **Clinical Trials on Alzheimer's Disease (CTAD)**. Boston, MA. November 2017.
Talks	4. *Probabilistic fine-mapping of transcriptome-wide association studies.* <u>Lu Z</u>. **Seminar in Biostatistics and Epidemiology**. Department of Population and Public Health Sciences, Keck School of Medicine of USC. Online. September 2020.
	3. *Proteome-Wide Association Study Identifies Independent Protein QTLs for Blood-Related Traits.* <u>Lu Z</u>. **Seminar in Biostatistics and Epidemiology**. Department of Population and Public Health Sciences, Keck School of Medicine of USC. Online. September 2020.
	2. *A4 Actigraphy Study Pre-randomization Analysis.* <u>Lu Z</u>. **ATRI Biostatistics Workshop**. Alzheimer's Therapeutic Research Institute, San Diego, CA. November 2018.
	1. *Dynamic Reporting Web Framework for Clinical Trials Using R Shiny.* Jain S, <u>Lu Z</u>. **ATRI Biostatistics Workshop**. Alzheimer's Therapeutic Research Institute, San Diego, CA. August 2018.
TAship **Experience**	**Analysis of Omics Data for Research Studies** 06/2021 Multi-omics Boot Camp of SHARPP Training Mailman School of Public Health, Columbia University
	PM-522A: Introduction to the Theory of Statistics Fall 2021 (Exp.) Department of Population and Public Health Sciences Keck School of Medicine, University of Southern California
Software	**FOCUS** • Python software to perform gene-trait fine-mapping from transcriptome-wide association studies in either single ethnic or multi-ethnic settings. • `https://github.com/mancusolab/focus`
	ADNI3 and LEADS Dynamic Web Report • Two Shiny apps that transform static reports to interactive web pages for clinical trails investigators' monitoring on enrollment, primary outcomes, and safety. • Interval apps that are not public accessible.
	ADNI3, A4, and LEADS • Three R packages that crawl EDC API, transform data into CDISC format, and automatically build several reports (enrollment, safety etc) for clinical research. • Interval packages that are not public accessible.
Other **Contributions**	**Reviewer Services** Reviewer for PLOS Computational Biology

Skills   R (Tidyverse, Shiny), Python, SAS, Stata, plink, gcta, bedtools, LDSC, Git, Latex, Linux, CDISC.