JIACHEN AI

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EDUCATION

University of California, Los Angeles, Fielding School of Public Health, USA   Sept. 2023 – Current
Major: Biostatistics (Master of Public Health)   **GPA:** 4.00/4.00 (four quarters)
- Steve Wallace Policy Fellowship   June 2024
- APEx Funding at Department of Human Genetics   May 2024
- Twice Fielding School of Public Health Dean's Leadership Grant   Apr. 2024 & May 2023

Skills:
- Methods in Biostatistics, Statistical Learning, Regression Analysis, Probability Theo and Statistics, Linear Algebra
- R, Python (NumPy, Pandas, Matplotlib), SAS, STATA, SQL, LaTeX
- Linux scripting, Git/GitHub
- Container technology (Docker)
- Data wrangling (Tidyverse), Data visualization (ggplot2)
- Databases: OLAP (DuckDB), Google BigQuery
- Frontend development (shiny, web app)
- Cloud computing (GCP, AWS, Azure, OCI)
- High-performance computing (HPC) on cluster (Hoffman2)
- Deep learning with Keras + TensorFlow/PyTorch

Southwest University, School of Life Sciences, China   Sept. 2018 – June 2022
Major: Biological Sciences (Bachelor of Science)   **GPA:** 3.84/4.00 (2nd/65)
- Outstanding Graduate, Outstanding Intern, Outstanding Undergraduate Graduation Thesis   June 2022
- International or Overseas Research Award   Dec. 2021
- Twice Third-Class Scholarships for Academic Excellence   Dec. 2021 & Dec. 2020
- Second-Class Scholarship for Academic Excellence, Merit Student Award   Dec. 2019

Skills:
- Bioinformatics, Biochemistry, Cell Biology, Molecular Biology, Genetics, Microbiology, Physiology, Neurology
- PCR, qPCR, DNA/RNA extraction and quantification, CRISPR/Cas9, cloning, electrophoresis, next-generation sequencing library preparation
- RNA-seq, ChIP-seq, single-cell RNA-seq, Bisulfite sequencing, GWAS (Genome-Wide Association Studies)
- Western Blot, ELISA, mass spectrometry, protein-DNA interaction assays, chromatin immunoprecipitation (ChIP)
- Cell culture, transfection, microscopy (confocal, fluorescence), immunofluorescence, flow cytometry

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RESEARCH

DNA Methylation Biomarkers of Aging in Male Mice Colon from Non-Linear Models   Los Angeles, USA
Graduate Student Researcher (supervised by Dr. Feng Gao)   Sept. 2024 – Current
- Applying k-means based unsupervised hierarchical clustering on CpG methylation matrices from mice colon tissue and detecting differentially methylated regions (DMRs) across three distinct aging stages: young, midlife, and late-life.
- Characterizing age-related biomarkers (DMRs) by neural network.

Epigenetic Regulation of Immune Response to Influenza Vaccination: A Multi-Omics Analysis in the UGA6 Cohort   Los Angeles, USA
Volunteer Graduate Student Researcher (supervised by Dr. Matteo Pellegrini)   Mar. 2024 – Current
- Established prediction models using multivariate linear regression with LOOCV to associate DNA methylation profiles with sero-protection at day 0 and day 28, as well as sero-conversion at day 28 post-influenza injection, mapping significant CpG sites to relevant biological processes and cellular components.
- Building similar models for RNA-seq and cytokine datasets from the same cohort and integrating multi-omics data, and thereafter elaborating biological pathways involving influenza vaccines immune response.

Statistical Data Analysis for Biology and Biomedicine Research   Chongqing, China
Undergraduate Research Assistant   Jun. 2021 – Jan. 2023
- Applied stochastic process theory to model random walks as time-homogeneous Markov chains, analyzing their recurrent and transient properties.
- Conducted multivariate regression in R, identifying a significant correlation between rice yield and irrigation across five growth stages.
- Performed logistic regression in R, revealing three categorical variables significantly associated with semen quality.

Lymphocyte Regeneration after Thymocyte Damage in Zebrafish   Chongqing, China
Volunteer (supervised by Dr. Li Li)   Oct. 2019 – June 2020
- Built a damage model of zebrafish thymocytes by treating zebrafish with 2 mM Metronidazole for 12 hours in vivo. Detected apoptosis and a significant reduction of thymus lymphocytes through whole mount in situ hybridization (WISH) and confocal microscopy.
- Discovered that the CXCL12/CXCR4 chemokine signaling pathway plays a key role in the repair of zebrafish T lymphocytes by real-time PCR (RT-qPCR).
- Inhibition of this pathway with WZ811, a CXCL12/CXCR4 receptor antagonist, significantly impaired lymphocyte recovery.

PUBLICATION

- Ai, J. (2021) Lifestyle does affect semen quality: factor determination in a statistical way. *Lecture Notes in Medicine and Life Sciences*, 4, 163–171. .

TEACHING

Graduate Teaching Assistant at UCLA   Los Angeles, USA
MCD BIO 187AL: Research Immersion Laboratory in Genomic Biology   June 2024 – July 2024
- Lead lab sessions and TA office hours, demonstrating bioinformatics tools, including NCBI Blast, InterProScan, JPRED4, PSIPRED, DeepTMHMM, WoLF PSORT, SignalP, AlphaFold3 server, ChimeraX, etc., and mentored student final projects.

EXPERIENCE

2024 Computational Genomics Summer Institute (CGSI)   Los Angeles, USA
Warren Alpert Computational Biology and AI Network Fellow   July 2024 - Current
- Participating in the CGSI for two consecutive summers (2024 and 2025). Engaged in workshops on computational medicine with a focus on genomic biobanks and computational genomics.
- Working with fellows across institutions to develop a collaborative research project focusing on the analysis of epigenetics data under mentorship from CGSI faculty. Responsibilities include project proposal presentations, final presentations, and comprehensive write-ups.

Higher Education in Public Health   Los Angeles, USA
Panel Member   Apr. 2024
- Presented the UCLA FSPH master's programs of biostatistics for perspective students and answered inquiries.

SWU Life Science Administrative Office   Chongqing, China
Office Assistant (6 semesters)   Oct. 2018 – Jun. 2021
- Organized five meetings per semester, acting as the liaison between administrative staff and a class of 65 students, addressing inquiries and providing feedback.
- Advised 41 freshmen on academic performance, course selection, extracurriculars, and research opportunities.

SWU Central Library   Chongqing, China
Volunteer (40 hours)   Oct. 2019 – Jan. 2020
- Coordinated a charity evening for over 200 attendees, sponsored by the SWU Library Volunteer Association, handling venue reservations and decoration.
- Assisted with organizing the library, including classifying books and managing borrowing and returns.

SWU Social Study   Chongqing, China
Team Leader in a project—Ecological Civilization Construction in Jinyun Mountain   Nov. 2019 – Dec. 2019
- Led a team of five in a field study, interviewing three experts and gathering 226 valid questionnaires on ecosystem preservation and tourism development. Our findings received over 1,000 positive reviews from local residents.

INTERNSHIP

Western Biomedical Technology Inc.   Chongqing, China
Intern, Immunization Team of IT Department   Mar. 2021 – June 2021
- Developed a Python program using convolution methods to recognize light bands, which improved the accuracy of western blot results.
- Created an R-based program for calculating standard concentration curves in ELISA, boosting calculation speed.
- Presented biweekly and oversaw experiments and reports in Immunology, Histopathology, and Molecular Biology.
- Enhanced team efficiency by coordinating effectively with customers and colleagues across departments.