

# ZICHEN LIU

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## EDUCATION

**University of California, Los Angeles**, Los Angeles, CA    **September 2022–Present**  
*Doctor of Philosophy in Biostatistics*

**University of Washington**, Seattle, WA    **September 2020–March 2022**  
*Master of Science in Biostatistics*

**Pomona College**, Claremont, CA    **August 2014–May 2018**  
*Bachelor of Arts in Chemistry*

## RESEARCH EXPERIENCE

**Department of Biostatistics**, University of California, Los Angeles

**Graduate Student Researcher**    **September 2022–Present**

Principal Investigator: Thomas Belin, PhD

- Investigating novel survey methods to measure gender identity & sexual orientation

**Graduate Student Researcher**    **June 2023–Present**

Principal Investigator: Catherine Crespi, PhD

- Developed R package to standardize sample size and power calculations

**Biostatistician**, Public Health – Seattle & King County    **October 2021–March 2022**

Principal Investigators: Danny Colombara, PhD and Alastair Matheson, PhD

- Modeled housing instability outcomes after exiting public housing authorities
- Designed statistical analysis plan to present to sponsors and housing partners

**Research Assistant**, Fred Hutchinson Cancer Research Center    **March 2021–June 2021**

Principal Investigators: James P. Hughes, PhD and Allison Meisner, PhD

- Modeled viral suppression achieved by HPTN 096 clinical trial for HIV prevention
- Simulated cluster randomization to evaluate novel propensity score weighting methods

**Product Development Intern**, Genentech    **June 2021–September 2021**

Principal Investigator: Wei Tew, MSc

- Queried accelerometer measures and patient-reported outcomes from UK Biobank database
- Designed analysis of covariance, longitudinal data analysis, and survival analysis models
- Reported associations between respiratory disease health outcomes and physical activity

**Institute for Health Metrics and Evaluation**, University of Washington

**Data Specialist**, Clinical Informatics    **August 2020–February 2021**

Principal Investigator: Stephen Lim, PhD

- Built Python pipeline to estimate US Healthcare Cost and Utilization by county/race
- Designed Clinical Data Warehouse, a storage database with quality/redundancy checks
- Standardized 6 clinical datasets for the Global Burden of Disease Study using Python

**Data Analyst**, Injuries & Sexual Violence    **October 2018–July 2020**

Principal Investigators: Theo Vos, MD, PhD and Spencer L. James, MD, MPH

- Built Keras artificial neural network to detect new data sources from keywords
- Modeled 30+ injuries & sexual violence for Global Burden of Disease
- Produced data visualizations in R and updated methods appendices for publications

**Research Intern**, Clinical Informatics **June 2018–August 2018**  
Principal Investigator: Spencer L. James, MD, MPH  
• Automated detection of clinical coding errors with natural language processing

**Department of Chemistry**, Pomona College

**Research Assistant** **January 2017–May 2018**  
Principal Investigators: Daniel J. O’Leary, PhD and O. Maduka Ogba, PhD  
• Executed quantum mechanical calculations with Gaussian software  
• Developed Python script to visualize vibrational frequency data in PyMOL  
• Analyzed molecular orbital hyperconjugation effects to explain observations

**Research Assistant** **January 2015–December 2015**  
Principal Investigator: Malkiat S. Johal, PhD  
• Analyzed crystallography data of antimicrobial peptide and modeled in Avogadro  
• Conducted molecular dynamics simulations of lipid bilayer and peptide with GROMACS

**Research Assistant**, University College London **August 2016–December 2016**  
Principal Investigator: Andrew C. R. Martin, DPhil  
• Edited Perl code for abYmod antibody structure prediction neural network  
• Evaluated improvements through statistical analysis of 3D accuracy with Java

TECHNICAL  
SKILLS

Experienced: Python, R, SQL, Java, Unix/Linux, Git, Markdown  
Beginner: Stata, SAS, C, Perl, SML, HTML/CSS, JavaScript, L<sup>A</sup>T<sub>E</sub>X  
Software: MS Office (Word, Excel, PowerPoint, Visio), Tableau, Jira

HONORS

Nominated for Sigma Xi Scientific Research Honor Society, Claremont Colleges Chapter  
Passed with Merit, Associated Board of the Royal Schools of Music Violin Grade 8 Exam  
Creative Writing Category Winner, San Ramon Valley Student Recognition Project  
Silver Award, President’s Volunteer Service Award

PUBLICATIONS:  
*The Lancet*

Wu, A-M. et al, including **Liu, Z.** Global, regional, and national burden of bone fractures in 204 countries and territories, 1990-2019: a systematic analysis from the Global Burden of Disease Study 2019. *The Lancet Healthy Longevity* 2021. 2(9): e580-e592.

Vos, T. et al, including **Liu, Z.** Global burden of 369 diseases and injuries in 204 countries and territories, 1990-2019: a systematic analysis for the Global Burden of Disease Study 2019. *The Lancet* 2020. 396(10258): 1204-1222.

Leilei, D. et al, including **Liu, Z.** The burden of injury in China, 1990-2017: Findings from the Global Burden of Disease Study 2017. *The Lancet Public Health* 2019. 4(9): e449-e461.

PUBLICATIONS:  
*BMJ Injury Prevention*

James, S.L. et al, including **Liu, Z.** Global injury morbidity and mortality from 1990 to 2017: results from the Global Burden of Disease Study 2017. *Injury Prevention* 2020. 26: i96-i114.

James, S.L. et al, including **Liu, Z.** Estimating global injuries morbidity and mortality: methods and data used in the Global Burden of Disease 2017 study. *Injury Prevention* 2020. 26: i125-i153.

Híjar, M. et al, including **Liu, Z.** Unintentional injuries in Mexico, 1990-2017: findings from the Global Burden of Disease Study 2017. *Injury Prevention* 2020. 26: i154-i161.

Crowe, C.S. et al, including **Liu, Z.** Global trends of hand and wrist trauma: a systematic analysis of fracture and digit amputation using the Global Burden of Disease 2017 Study. *Injury Prevention* 2020. 26: i115-i124.

Haagsma, J.A. et al, including **Liu, Z.** Falls in older aged adults in 22 European countries: incidence, mortality and burden of disease from 1990 to 2017. *Injury Prevention* 2020. 26: i67-i74.

Franklin, R.C. et al, including **Liu, Z.** The burden of unintentional drowning: global, regional and national estimates of mortality from the Global Burden of Disease 2017 Study. *Injury Prevention* 2020. 26: i83-i95.

James, S.L. et al, including **Liu, Z.** The global burden of falls: global, regional and national estimates of morbidity and mortality from the Global Burden of Disease Study 2017. *Injury Prevention* 2020. 26: i3-i11.

Nguyen, Q.A. et al, including **Liu, Z.** Burden of injuries in Vietnam: emerging trends from a decade of economic achievement. *Injury Prevention* 2020. 26: i75-i82.

Haagsma, J.A. et al, including **Liu, Z.** Burden of injury along the development spectrum: associations between the Socio-demographic Index and disability-adjusted life year estimates from the Global Burden of Disease Study 2017. *Injury Prevention* 2020. 26: i12-i26.

James, S.L. et al, including **Liu, Z.** Morbidity and mortality from road injuries: results from the Global Burden of Disease Study 2017. *Injury Prevention* 2020. 26: i46-i56.

Laloo, R. et al, including **Liu, Z.** Epidemiology of facial fractures: incidence, prevalence and years lived with disability estimates from the Global Burden of Disease 2017 study. *Injury Prevention* 2020. 26: i27-i35.

Pant, P.R. et al, including **Liu, Z.** Burden of injuries in Nepal, 1990-2017: findings from the Global Burden of Disease Study 2017. *Injury Prevention* 2020. 26: i57-i66.

PUBLICATIONS:  
*Tetrahedron*

Ogba, O.M., **Liu, Z.**, O'Leary, D.J. 2019. Vibrational analysis of a rate-slowing conformational kinetic isotope effect. 2019. *Tetrahedron*. 75(5): 545-550.

MAJOR  
PRESENTATIONS

Hu, H. Keating, T., **Liu, Z.**, and Petrakos, N. Mar 2022. Associations Between Public Housing Exit Type and Long-Term Outcomes. University of Washington, Seattle, WA.

**Liu, Z.** Aug 2021. Physical Activity and Respiratory Disease: Findings from the UK Biobank Longitudinal Study. Genentech, South San Francisco, CA.

**Liu, Z.** Feb 2021. Injuries Data Processing, Crosswalk Methods, and Modeling. Institute for Health Metrics and Evaluation, Seattle, WA.

Roberts, N. and **Liu, Z.** Oct 2020. The Global Burden of Sexual Violence. American Public Health Association 2020 Annual Meeting and Expo. Virtual.

**Liu, Z.**, O'Leary, D.J., Ogba, O.M. Mar 2018. Visualizing the Origin of Kinetic Isotope Effects with Python. American Chemical Society National Meeting 2018, New Orleans, LA.

**Liu, Z.** Mar 2018. Locating Unimolecular Conformational Kinetic Isotope Effects (LUCKIE). Chemistry Department Senior Thesis Symposium, Pomona College, Claremont, CA.

**Liu, Z.** and To, S.C. Aug 2015. Examining Interactions between Temporin-SHf and POPC: a Molecular Dynamics Study. Summer Undergraduate Research Program, Pomona College, Claremont, CA.

TEACHING  
EXPERIENCE

**Computer Science Fellow**, Quantitative Skills Center **January 2015–May 2016**

- Guided students through introductory computer science homework and projects
- Scheduled one-on-one appointments with students two to four times a week

**Chemistry Teaching Assistant**, Pomona College **August 2015–December 2015**

- Collaborated with professor to formulate homework for accelerated general chemistry
- Held weekly mentor sessions and graded assignments for 50 students

**Writing Teaching Assistant**, Miss Caitlin’s Writing Program **May 2016–August 2016**

- Developed activities for Common Core English Language Arts topics for grades 3 to 8
- Facilitated classroom upkeep and organization for 20 students

COMMUNITY  
ENGAGEMENT

**Member**, UW Biostatistics EDI Committee **October 2021–March 2022**

- Organized fundraising opportunities to support need-based department scholarship

**Member**, Rainbow IHME Affinity Group **October 2018–February 2021**

- Organized social activities for annual in-office Pride month celebrations
- Created educational content about LGBT+ history for 3 digital newsletters

**Volunteer**, Asian Counseling and Referral Service **March 2019–Oct 2019**

- Volunteered at Seattle Community Farm, Free to Be fundraiser, and Annual Benefits Gala
- Assisted staff on-site during annual Walk for Rice 5k for over 1000 participants

**Health Bridges Coordinator**, Pomona Valley Hospital **February 2017–May 2018**

- Assisted ER patients with Mandarin translation and Medicaid applications weekly
- Designed patient follow-up database and trained 20 volunteers on its efficient usage

**Intern**, Asian American Resource Center **January 2017–May 2018**

- Collaborated with staff to plan 10 community events, workshops, and projects
- Held office hours, budgeted finances, and increased social media presence by 100%

**Liaison**, Pomona College Chemistry Department **March 2016–May 2018**

- Promoted department events, planned discussions, and presented on advice panels
- Conducted department climate survey and formulated improvements with faculty

**Volunteer**, Saturday Tongan Education Program **January 2016–May 2016**

- Assisted local Tongan youth ages 3 to 18 through homework and educational activities
- Engaged with youth through outdoor activities and hands-on science demonstrations

**Mentor**, Asian American Mentor Program **August 2015–May 2016**

- Mentored 20 first-year students and organized social events
- Directed informative workshops focusing on Asian-American identity for 100 attendees

LANGUAGES

English:	Native proficiency
Chinese (Mandarin):	Intermediate proficiency
French:	Elementary proficiency

HOBBIES

Choir:	Member of UCLA Chorale 2022; UW Treble Choir 2019–2022;
Violin:	Violinist in Pomona College Orchestra 2014–2018
Creative writing:	Independently published in 2018, 2020

Competitive gaming:      Organized video game tournaments in 2015–2022