

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*

**University College London**, London, UK    **August 2016–December 2016**  
*Study Abroad, Division of Biosciences*

RESEARCH  
EXPERIENCE

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

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

- Modeled long-term health and economic outcomes of 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

- Simulated 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    **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 for Global Burden of Disease and Sustainable Development Goals
- 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

**Chemistry Department**, Pomona College

**Research Assistant**    **January 2017–May 2018**

Principal Investigators: Daniel J. O’Leary, PhD and O. Maduka Ogbu, 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, SPSS Statistics

**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**, 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 LGBTQ+ 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):	Native fluency, intermediate literacy
French:	Elementary proficiency

HOBBIES

Violin:	Violinist in Pomona College Orchestra 2014–2018
Choir:	Member of University of Washington Treble Choir 2019, 2021–2022
Creative writing:	Independently published in 2018, 2020
Competitive gaming:	Organized video game tournaments in 2015–2019, 2021–2022