Jing-Zhong Wang

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Education

National Taiwan University

M.S. in Biostatistics and Health Data Science, Biological Statistics Program — *Sep 2022 – June 2024*

B.S. in Public Health, Big Data in Health Program, Infectious Diseases Program — *Sep 2018 – June 2022*

- **Awards:** Excellence in Research Poster Exhibition (2024); 3rd Place in English Oral Presentation (2023).
- **Coursework:** Biomedical Statistical Consultation, Spatial Analysis, Advanced Biometrics, Machine Learning, Statistical Analysis of Genetic Data, R Programming and Visualization.
- **Teaching Experience:** Biostatistics I (3 Semesters), Applied Biostatistics (1 Semester).

Experience

Institute of Epidemiology and Preventive Medicine, NTU — *Taipei, Taiwan*

Research Assistant — *Mar 2021 – Oct 2024, Feb 2025 – Present*

- Developed Bayesian spatio-temporal hierarchical models to estimate mortality and life expectancy trends across Taiwanese sub-populations, **generating RWE for public health policy**.
- Conducted Bayesian meta-analyses for *Helicobacter pylori* prevalence studies, integrating **over 1,700 studies** from multiple sources to inform disease burden assessments.
- Processed and analyzed **large-scale NHIRD datasets (2000–2021) using SAS MACRO, SQL and R** to assess trends in diabetes and chronic kidney disease prevalence, **providing RWD insights for epidemiological studies**.
- Performed interactive data visualizations and calculated key epidemiological metrics (PAF, DALY, mortality, prevalence rates) to **effectively communicate findings**.
- Collaborated with international research teams, including a visiting guest role at School of Public Health, Imperial College London (Mar 2025 – Apr 2025) on statistical modeling projects.

Department of Biostatistics, Harvard T.H. Chan School of Public Health — *Remote*

Summer Intern — *Feb 2021 – Oct 2021*

- Applied statistical techniques to high-dimensional datasets in mediation analysis, **relevant to understanding treatment effects in real-world settings**.
- Used penalized regression models (MCP, Lasso) to identify mediators in high-dimensional datasets, **enhancing causal inference for health outcomes research**.
- Conducted causal inference using graphical models and average treatment effect frameworks, **critical for evaluating interventions in Real-World evidences**.
- Analyzed epigenetic data to examine the impact of gestational age on toxicant classes.

Publications

- Wang, J.Z., et al. (Expected 2025). **High-Resolution Spatiotemporal Analysis and Decomposition of Life Expectancy at Birth in Taiwan, 2000-2021 (Temporal name)**. (Manuscript In Preparation)

Projects

Diabetes Prediction and Diagnosis Enhancement — *github.com*

- Improved diagnostic accuracy by **10%**, achieving 99% performance through hyper-parameter tuning and advanced machine learning models (SVM, Random Forest, KNN, XGBoost, Ensemble learning).
- Performed comprehensive data preprocessing, feature selection, and missing data imputation for robust model development.

Chronic Kidney Disease Burden Analysis in Taiwan — *github.com*

- Developed analysis workflow and screening by disease criteria (including ICD codes, clinical definitions) for **large-scale real-world data (NHIRD)**.
- Analyzed NHIRD data (2000-2021) using **SAS MACRO, SQL functions, and R** to estimate CKD prevalence and burden.

Data Visualization Application for COVID-19 in Taiwan — *github.com*

- Designed an interactive dashboard incorporating Rt curve analysis, spatial mapping, and mobility trends using data from Taiwan CDC and Google API, built with R Shiny.

Technologies

Statistical Modeling & Data Science: Bayesian modeling (PyMC, R-INLA), Spatiotemporal modeling, Causal inference, Disease burden analysis, Data visualization, Survival analysis, Time series analysis.
Machine Learning Models: SVM, Random Forest, KNN, XGBoost, Ensemble learning, Deep Learning (Familiar).
Programming Languages: R, Python, SAS, SQL (Familiar), STATA (Familiar).
Languages: Mandarin (Native), English (Proficient), German (Intermediate), Japanese (Beginner).