

## CAIHAN WANG

Durham, NC 27705

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### PROFILE

An energetic and creative bioengineering graduate and Master of Biostatistics candidate at Duke University with interest in clinical and genetics research and passion for new and challenging opportunities and fields. Currently seeking an internship/full-time position in **Biostatistics** and/or **Biomedical Data Science**.

**Technical Skills:** R, SAS, Python, SQL, C++, Statistical Analysis Plan (SAP)

### EDUCATION

**DUKE UNIVERSITY**, School of Medicine, Durham, NC

**Master of Biostatistics**, May 2022, GPA: 3.9/4.0

Relevant coursework includes: Introduction to Statistical Programming I&II (R, SAS), Software Tools for Data Science I&II (Python), Introduction to the Practice of Biostatistics I & II (SAP), Survival Analysis, Machine Learning, Introduction to Statistical Theory and Methods I&II, Applied Biostatistics Methods I & II

**Master's Project: *Candidate Pathway-Based Analysis of Genetic Variants for the Progression from Mild Cognitive Impairment (MCI) to Alzheimer's Disease (AD)* (in progress)**

Advisor: Sheng Luo

- Identified candidate pathway and extracted related genes through literature search
- Extracted genotyping and imputed data and performed survival analysis to identify SNPs associated with the progression
- Conducted longitudinal analysis to explore the association between identified SNPs and cognitive phenotypes

**BEIJING TECHNOLOGY AND BUSINESS UNIVERSITY**, School of Light Industry, Beijing, China

**Bachelor of Engineering, Bioengineering**, June 2020, GPA: 3.6/4.0 (Top 10%). Outstanding Graduates of Beijing. First-class Scholarship for Outstanding Graduates. Scholarship for Outstanding Students (three times). The First Prize in the 6th Innovation and Entrepreneurship Competition in BTBU

Relevant coursework included: Advanced Mathematics, Linear Algebra, Probability and Mathematical Statistics, Computer Technology (C++), Gene Engineering, Cell Engineering, Enzyme Engineering, Biochemistry

### EXPERIENCE

**IQVIA**, Shanghai, China

Spring 2021

**Intern in Consulting**

- Participated in many medical equipment projects including Ultrasonic Scalpel Project, Peripherally Inserted Central C(PICC) Line Project, Overactive Bladder Project, and Joint Replacement Project
- Researched the major players in the Chinese medical equipment market, the main product types, and market size, and organized the desk research analysis report to submit it to the superior analyst
- Constructed market model using R and Excel to compute and predict the market size and future growth rate of medical equipment products
- Visualized the data of Chinese medical equipment market using R to show the market trends and completed the analysis report

**DUKE UNIVERSITY**, Durham, NC

Spring 2021

**Stroke Prediction Application Project**

- Created an application in Python which could predict strokes in patients, given their gender, age, hypertension, heart disease, marital status, work type, residence type, average glucose level, BMI, and smoking status data
- Visualized and cleaned the data using Pandas in Python to choose specific variables and prepare for the modeling
- Conducted logistic regression using sklearn library in Python to fit the model and achieve the accuracy at 0.80, which is the best model comparing with random forest and decision tree
- Created user interface using tkinter in Python to make whole application more interactive

**WESTLAKE UNIVERSITY**, Hangzhou, China

Winter 2020

**Visiting Researcher**, Professor Zheng Houfeng's Laboratory

- Conducted background investigations on existing research on bone density and depression and other psychological diseases, understood the mechanism of action, and wrote research reports
- Cleaned and filtered the data in the UK Biobank database by R, and utilized the data to explore the potential correlation between bone density and mental illness such as depression
- Utilized logistic regression model, multiple linear regression model, and Mendelian randomization to explore the correlation between bone mineral density and mental illness such as depression and wrote paper

**HUADONG MEDICINE CO., LTD**, Hangzhou, China

Summer 2020

**Intern in Data Analysis**, Operational Management Department

- Analyzed logistics data in 2019 and 2020 with R language and discovered the reason for the changes and differences between 2 years
- Investigated medicine market in China, compiled and collected the list medicines of national medical insurance negotiations and related data, and suggested future plans for medical purchases and sales

- Organized and summarized inventory data and processed inventory forecasting

**GUANGZHOU TOP GENE MEDICAL TECH CO., LTD**, Guangzhou, China

Spring 2019

**Intern in Research Service Group**, Project of Meta-Analysis for Ovarian and Breast Cancer

- Extracted and analyzed ovarian and breast cancer genetic mutation data
- Applied Meta-analysis with RevMan to explore correlation of ovarian and breast cancer with specific genes and geographical locations
- Conducted stratified data analysis by R over patients with ovarian and breast cancer in database
- Performed genetic analysis by R on the gene sequencing results of ovarian and breast cancer patients in the database

**BEIJING TECHNOLOGY AND BUSINESS UNIVERSITY**, Beijing, China

2017-2018

**Research Assistant**, School of Light Industry

- Established big data-based genetic analysis model
- Performed 16SrDNA gene sequencing on enteric microorganism, conducted in-depth machine learning and analysis of the big data in gene sequence database with artificial neural network technology, established discrimination model for different groups of people and provided customized health reports
- Conducted product market investigation and technology feasibility analysis
- Won the First Prize in the 6<sup>th</sup> Innovation and Entrepreneurship Competition in BTBU and the third prize in China Software Cup Innovation and Entrepreneurship Competition

**LEADERSHIP****BEIJING TECHNOLOGY AND BUSINESS UNIVERSITY**, Beijing, China

2016-2020

**Monitor**, School of Light Industry

- Led the class and won the Excellent Class Award twice (2018 & 2019)
- Led the class and won the third prize of the school chorus competition (2016/12)

**BEIJING TECHNOLOGY AND BUSINESS UNIVERSITY**, Beijing, China

2017-2019

**Captain, Basketball Team**, School of Light Industry

- Led the team and won the championship of BTBU basketball competition (2018)

**OTHER INFORMATION****Professional Association:** American Statistical Association