Zongchao Liu

zl2860@cumc.columbia.edu | 646-249-6941 | zl2860.github.io

EDUCATION

Mailman School of Public Health, Columbia University *New York, USA*
Master of Science in Biostatistics *Expected May.2021*

School of Public Health, Shandong University *Jinan, China*
Bachelor of Medical Science in Preventive Medicine *Jun. 2019*

School of Population and Public Health, University of British Columbia *Vancouver, Canada*
Exchange student *Jul. 2017 -Aug. 2017*

SKILLS

Knowledge: Biostatistical Methods, Statistical Inference, Epidemiology, Computational Statistics, Statistical Learning & Deep Learning, Basic & Clinical Medicine, Brain Imaging

Technical: R, Python, SPSS, Neo4j, MATLAB, EpiData, LaTeX, Git version control

Language: Fluently both orally and written in English, Cantonese and Mandarin

RESEARCH EXPERIENCE

Department of Mental Health Data Science, NYSPI *Mar.2020 – present*
Research Assistant *New York, USA*

- Designed an automatic strategy for cleaning and matching controls in customized ratio for the Adolescent Brain Cognitive Development (ABCD) Study dataset
- Constructed several 3d-based convolutional neural networks embedded with knockoff and integrated gradient techniques to interpretably select features from diffusion tensor brain imaging data with control of false discovery rate

Department of Epidemiology, Columbia University Aug.*2020 – present*
Research Assistant *New York, USA*

- Developed a procedure to filter patients with diagnosis of autism spectrum disorder(ASD) and calculated their comorbidity conditions association(standardized morbidity ratios) with ASD by adjusting age, ethnic groups and other factors
- Conducted a hierarchical clustering analysis to differentiate selected patients into different subgroups and investigated on the distributive patterns of the comorbidities within the subgroups

Research Center for Public Health, Tsinghua University Aug.*2020 – present*
Research Assistant *Beijing, China*

- Investigated on the distributional patterns of Chinese college students' casual sexual relationship(CSR) as well as the associated risk factors, and quantitatively evaluated the risk by exploring on behaviors and attitudes towards CSR
- Constructed vectors of features for each subjects and conducted a cluster analysis to decode the characteristics of the population that has the highest tendency to have CSR; prepared for the manuscript as the first author

Guangdong Institute of Gastroenterology *Jun.2019 – Aug.2020*
Research Assistant *Guangzhou, China*

- Developed scripts for automatically matching and correcting patients' information, as well as extracting radiomics features from CT, MRI images by customized filters
- Conducted feature selection process and constructed predictive models by implementing random forest, gradient boosting machine, support vector machine to predict the pathological complete response (pCR) in patients with rectal cancer after neoadjuvant treatment

Department of Biostatistics, Shandong University *Jan.2018 – Jun.2019*
Research Assistant *Jinan, China*

- Constructed an improved gray model(1,1) to predict the incidence rates of cervical cancer and endometrial carcinoma from 2018 to 2020 in Shandong, verifying other previous prediction of the incidence rates
- Conducted an epidemiology study by presenting the crude, age-standardized and urban(rural) incidence rates of cervical cancer and endometrial carcinoma in Shandong Province, 2013~2017
- Designed and constructed Diabetes Knowledge Graph using Neo4j by coding specific nodes and relationships including the complete process for screening, diagnosis, treatment, and education

PUBLICATIONS AND PRESENTATIONS

- Zhuang Z., **Liu Z.**[#]**,** Wang X., et al. Radiomics analysis of computed tomography for predicting pathological response to neoadjuvant treatment in rectal cancer: Post-hoc Analysis of a Randomized Controlled Trial [J]. *Frontiers in Oncology Gastrointestinal Cancers*. 2020, under review
- Hu B., Li R., **Liu Z.,** et al. Insight into the Hospital-based Low-medium Intensity Rehabilitation on Postoperative Outcome in Patients with Total Knee Arthroplasty: A Prospective Randomized Study [J]. *Knee Surgery, Sports Traumatology, Arthroscopy.* 2020, under review
- **Liu Z.** , Wang S., Ge Y. (Aug 10, 2017). "Global Health Issues on Childhood Obesity" Poster session presented at Undergraduate Research Conference at University of British Columbia, Vancouver.

RELEVANT PROJECTS

- Fragility Index for Clinical Trials
- A Simulation Study to Compare Two Bootstrapping Methods for propensity-score matching
- Implementation and optimization of algorithms on cancer diagnosis dataset
- Analyses of daily COVID-19 cases across nations
- A Bayesian model of hurricane trajectories

RELEVANT WORK EXPERIENCES

Qingdao Center for Disease Control and Prevention *Qingdao, China*
Staff Intern *Feb. 2019 – Jun. 2019*
Shandong Qianfoshan Hospital *Jinan, China*
Intern Physician *May. 2017 - Jul. 2017*

HONORS & AWARDS

Outstanding Graduates *2019*
Excellent Student Scholarship *2015~2019*

Member of the Elite Class, Chinese Academy of Sciences *2018*

First Prize, Shenzhen Cup Mathematical Modeling Competition *2016*

Bronze Award, Information Technology and Entrepreneurship Competition *2017*