Xieheng Wang

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Research interests	Statistical methods & applications to big data, Biomedical data science, Statistical genetics and genomics, Dimension reduction, Transfer learning

Education

Tsinghua University   **Beijing, China**

B.Eng. in Measurement, Control Technology and Instruments   *GPA: 3.69/4.00*
                                                                     Sept. 2019 – Jul. 2023
Minor in Statistics   *GPA: 3.92/4.00*
                                                                     Mar. 2021 – Jul. 2023

University of Minnesota, Twin Cities   **MN, USA**
Ph.D. in Statistics   *GPA: 3.83/4.00*
                                                                    Aug. 2023 – Present

Research experience

Causal Inference between Multi-Omics traits and Alzheimer's Disease

Mentor: Wei Pan (University of Minnesota)   *Aug. 2023 – July. 2024*
• Applied 2ScML (2-stage constraint maximum likelihood) to OmicsPred pre-trained models and AD GWAS data(such as IGAP and EADB) to identity (putative) causal relationships between multi-omiccs traits and Alzheimer's Disease.

Relationships and Shared Genetic Influences between T2D Biomarkers and Human Brain Health
Mentor: Bingxin Zhao (University of Pennsylvania)   *Apr. 2022 – Dec. 2022*
• Explored the association between Type 2 diabetes and human brain from individual level (polygenic risk score analysis) and summary level (LD Score Regression and Local Analysis of [co]Variant Association).

Pure Noise Enables Privacy-preserving Federated Learning with Non-iid Data
Mentor: Huaiyu Dai (North Carolina State University)   *July 2022 – Aug. 2022*
• Applied OPeN (Oversampling with Pure Noise Image) in the framework of federated learning to enhance performance and privacy.

Feature-based Classification on MQTT Data
Mentor: Jingyi Zhang (Tsinghua University)   *Oct. 2021 – Jun. 2023*

- Applied POTD (principal optimal transport direction) on MQTT-IoT-IDS2020 dataset to extract fearures distinguishing different attacks.
- Proposed a new ensemble method of multiclass classification based on SDR subspace using POTD.

Design and Construction of Vision-based Quadrotor Navigation Control System

Mentor: Kaichun Zhao (Tsinghua University)   *Sept. 2020 – Dec. 2021*

- Applied some visual SLAM methods like SuperPoint on real image data obtained by drone in the environment of smoke.

Publications	J. Liu*, Y. Tang*, H. Zhao, **X. Wang**, F. Li, and J. Zhang, "CPS Attack Detection under Limited Local Information in Cyber Security: A Multi-node Multiclass Classification Ensemble Approach", *ACM Transactions on Sensor Networks (TOSN)*, 2024. [pdf]

Teaching experience

Teaching assistant, Tsinghua University

The Martial Geomorphology and The Directional Sport (Orienteering)

       Spring 2022

Teaching assistant, University of Minnesota, Twins Cities

STAT4101: Theory of Statistics I   *Fall 2024*

Honors and scholarships

Sports Excellence Scholarship, Tsinghua University	*2022*
Academic Excellence Scholarship, Tsinghua University	*2021*
Sports Excellence Scholarship, Tsinghua University	*2021*
Academic Excellence Scholarship, Tsinghua Univerisity	*2020*
Sports Excellence Scholarship, Tsinghua University	*2020*

Skills

Programming

R, Python, PyTorch, MATLAB, C/C++

Tools

LaTeX, Linux, SPSS, Git, OCAD

Languages

English (TOEFL:102, CET-6:630), Mandarin (native)

Leadership&Activities

Vice president of Tsinghua University Student Orienteering Association

       Sept. 2022 - Jun. 2023

Member of Tsinghua Orienteering Team   *Oct. 2019 - Jun. 2023*

Volunteer and member of Minnesota Orienteering Club (MNOC)

       Sept. 2023 - Present