Rong Wei

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Education Background

University of Science and Technology of China**(USTC)** Sep 2019 - Present

- Major: **Statistics**
- Performance (Overall GPA): **3.91/4.3** (ranking: **top 10 %**)
- Coursework: Mathematical Statistics (**95**), Applied Stochastic Process (**96**), Differential Equations 1 (**97**), Complex Analysis (**93**), Real Analysis (**94**), Linear Algebra B1, B2 (**100**, **91**), Regression Analysis (**91**), Convex Optimization (**90**), Time Series Analysis A (**90**), Categorical Data Analysis (**90**), Multivariate Analysis A (**92**)

Awards & Honors

Rose Female Leadership Scholarship	2022
Bao Gang Education Scholarship	2021
Chinese Mathematics Competitions, AnHui, The Second Prize	2021
Talent Student Gold Scholarship in USTC	2020
Special Freshman Bronze Scholarship in USTC	2019

Research Experience

Research Interest: Statistics and Machine learning, Causal Inference, Invariant and Stable Learning, Robust Prediction, Generative Model, Bayesian Methods, Computational Neuroscience

Diffusion-based Generative Model for Neural Structure in C.elegans [Ongoing] Sep 2022 - Present

Advisor: Prof. Quan Wen (USTC)

- Apply Diffusion Generative Model for 3D point cloud generation of the C.elegans' neural structures.
- Propose to use the conditional diffusion model to generate more realistic point clouds in certain directions
- Explore the combination of brownian bridge model and diffusion model for reversible and more stable point clouds generation

Subset Privacy and Its Application in Genomic Data Jun 2022 - Sep 2022

Advisor: Prof. Jie Ding (UMN), Ganghua Wang (UMN)

- Completed a literature review about privacy protection methods in genomica data and high-dimensional feature selection methods
- Implemented simulations to select causal SNPs positions based on obfuscated raw data, adding intervention by subset privacy method, empirically demonstrating the application of subset privacy in high-dimensional situations
- Explored subset design for more efficient feature selection under subset privacy framework

HKUST Summer Intern Program: Invariant Learning July 2022 - Sep 2022

Advisor: Prof. Tong Zhang (HKUST), Dr. Xinwei Shen (ETH)

- Finished a survey of comparing different invariant learning and stable learning methods (mainly focus on Invariant Causal Prediction, Invariant Risk Minimization, and Anchor regression)
- Empirically implemented Anchor Regression and Invariant Risk Minimization algorithm in linear settings.
- Extended Anchor Regression into machine learning form and simulated in non-linear settings

Undergraduate Research Program: Platform of Breast Health Based on AI Jun 2021 - Jun 2022

Advisor: Prof. Yin Dong (USTC)

- Adjusted and optimized the interface of the family evaluation online platform of breast health based on AI, improving its interactivity with users and website appearance
- Implement several famous neural networks to breast cancer datasets for classifying benign and malign pictures. ResNet-34 has shown higher accuracy in classfication, while AlexNet needs less training time

Course Projects

Modeling for Time Series Data [link] 2022 Spring
Course: Programming Practice for Scientific Problems Solving
Apply SARIMA model for time series data analysis and predict the future trend of the series

Exploratory Bike-Sharing Data Analysis [link] 2021 Fall
Course: Applied Statistical Software
Explore exploratory Divvy bike-sharing data analysis and k-means methods for clustering

EM algorithm for MLE in GMM [link] 2021 Spring
Course: Programming Practice for Scientific Problems Solving
Implement EM algorithm for maximum likelihood estimation of GMM

Activities & Leadership

TA in Probability Theory and Mathematical Statistics Sep 2022 - Jan 2023
An undergraduate statistical course taught by Prof.Weiping Zhang
My work is to correct the homework, lead recitation class and answer questions

CNeuro2022 Summer School Aug 2022 - Aug 2022
Participated in summer courses focused on theoretical and computational neuroscience

Peer Academic Counseling: 1 to 1 Tuition for Mathematical Statistics Jul 2022 - Aug 2022
Held several revision courses for a sophermore student who had difficulties in the course

Dactylology Teacher in Fangcao Volunteer Association in USTC Feb 2020 - Feb 2021
Taught sign language to group members
Participated in volunteer work (accompanying autistic children) in the community

Class Monitor in 2019 undergraduate statistical class Sep 2020 - Present
held several activities in and between classes
led the class to obtain an honor in 2022 fall: Advanced Class

Skills

Programming Skills	R, Python (Pytorch), MATLAB, C
Website Making	Html, Bootstrap Framework
Software	Origin(Physics Experiments), SPSS, Overleaf (Latex)
Language	**TOERL**: 106 (Reading: 30, Listening: 27, Speaking: 23, Writing: 26)
	GRE General: Verbal 157, Quantitative 169, Analytical Writing: 3.5