

Sun Haoran

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EDUCATION

Johns Hopkins University

MSE in Applied Mathematics and Statistics

Baltimore, USA

01/2023–05/2024

University of Minnesota, Twin Cities.

B.S. in Statistics

GPA: 3.71/4.0

Minneapolis, USA

08/2019–12/2022

Minor in Computer Science and Mathematics

PROFESSIONAL EXPERIENCE

University of Minnesota, Twin Cities.

Minneapolis, USA

Undergraduate Statistics Teaching Assistant

09/2022–12/2022

- Course introduction: STAT 3011 Introduction to Statistical Analysis. This is an introductory course for statistics majors on standard statistical reasoning, simple statistical methods, social/physical sciences, mathematical reasoning behind facts in the daily news, and a basic computing environment.
- Main responsibilities: 1) Hold weekly labs to teach the basic use of R; 2) hold discussion and office hours to answer questions that students encounter in lecture, lab, homework, and exam; 3) mark homework and exams.

Tianhe Supercomputing Huaihai Center

Linyi, China

Researcher, Analyst

05/2021–08/2021

Medical Image Classification

- Main mission: Assisted the project development department in data processing and analysis for physiotherapy image recognition project with the aim of classifying patient X-rays by identifying the detected body parts.
- Process: Using traditional k-means clustering, only the absolute positions of most samples are considered, and their relative positions are ignored. The X-ray film shows that the relative position of the body part is not fixed. PSO algorithm was used to iterate to obtain the best K-means clustering of the required initial value.

RESEARCH EXPERIENCE

Machine Learning to Stress Cardiomyopathy (SCM) in Patients Admitted to Intensive Care

09/2023–present

- Purpose: Using machine learning to predict SCM based on ECG
- Dataset: MIMIC IV ECG (Training and Test), PMAP (Validation)
- Method: EffNet, A neural network algorithm designed for classification of 12-lead ECG data.

Benchmarking Cognitive Development in Large Vision Models: A Piagetian Dataset

03/2024–present

- Evaluate 18 large vision models on our benchmark covering all the four stages of cognitive development.
- Develop a generic metric of performance and a mental-age estimator to compare artificial models to humans.
- Furthermore, launch and consistently maintain a leaderboard to provide a platform for the community to assess and investigate model capability.

HEK HCP ELISA Robustness Study

Los Angeles, USA 5/2020–3/2021

- Experiment introduction: HCP, host cell proteins, are protein impurities produced by the host organism during biotherapeutic production. In this study, we examined the changes in the residual HCP under different reagents, standards, and incubation times.
- Conclusion: A total of nearly 300 sets of data were obtained from 17 groups of experiments. Multivariate ANOVA was used to compare the between-group data and within-group data.

SKILLS & INTERESTS

Languages

English: GRE 334+4 (writing); Mandarin: native

Technical Skills: Python, R, C++, Java