Andrew Du

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EDUCATION

University of Toronto Sept 2022- Nov 2023

Master of Engineering

Mechanical and Industrial Engineering(Emphasis in Analytics)

University of Toronto Sept 2018 - June 2022

Honours Bachelor of Science

Applied Statistics Specialist & Mathematics Minor

PUBLICATION

Haoyan Jiang, Sachi Mizobuchi, **Andrew Du**, and Mark H. Chignell. 2024. Seeing Think-aloud: How Eye Movements Predict Verbalization in a Driving Case Study (Submitted to *CHI '24)*

Lei He, Rong-Xian Yue, and **Andrew Du**. 2024. Optimal designs for comparing curves in regression models with asymmetric errors. *Journal of Statistical Planning and Inference* 228: 46–58. http://doi.org/10.1016/j.jspi.2023.06.005

RESEARCH EXPERIENCE

Enhancing Verbalization Prediction through Eye Movement Analysis in a Driving Study(MIE8888Y Project**)**

Supervisor: Mark H. Chignell Feb 2023 - Sep 2023

- Data preprocessing and alignment involved meticulous cleaning, merging, and alignment of eye-tracking, gyroscope, and accelerometer data.
- Feature engineering involved essential calculations and derivations to enrich the dataset for analysis.
- Data analysis and model evaluation involving analysis of the preprocessed and feature-engineered data.
- A comprehensive literature review was undertaken following the rigorous data analysis, focusing on integrating think-aloud methodologies with eye-tracking data. Part of the related work writing and the summary of sentence complexity analysis are in the appendix.

CurveContrast: Unveiling Asymmetry in Regression Curves with Optimal Design Comparisons

Collaborator: Rongxian Yue, Lei He Jan 2022 - June 2023

- Used a PSO-based algorithm to generate the μ_∞-optimal design under the SLSE. The algorithm involves constructing the μ_∞-optimal design using PSO, finding the set of extremal points of a function, and calculating the measure π^* on the set of extremal points by minimizing a function defined in the paper.
- Conducted literature review related to other nature-inspired algorithms like differential evolution (DE), competitive swarm optimizer (CSO), and imperialist competitive algorithm (ICA), as well as mathematical programming approaches like Semi-definite programming (SDP) or Semi-infinite programming (SIP), which are also recommended for searching minimax optimal designs of experiments.

PROFESSIONAL EXPERIENCE

Data Analyst Intern, Jiangxi Quanxin Electric Co., Ltd., Jiangxi, China Jun 2019 – Aug 2019

- Cultivated the ability in data collecting and analyzing to support the company's quality control team with insights into potential market growth opportunities.
- Used simple random sampling technique to sample the products and used hypothesis test to define the sample defective probability of products.
- Utilized advanced data mining techniques to visualize production quality trends and provide data evidence/support to validate hypotheses.
- Helped the production process team identify the relationship between the distribution of product defects and the manufacturing parameters such as working temperature, humidity, surface flatness, dimension accuracy, sintering atmosphere, and others.

SKILLS

Python, R, PySpark, SQL