HANBIN LIU

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EDUCATION

Southern University of Science and Technology, China _2019.9 − 2023.6_
B.Sc., Statistics (Supervisor: Prof. Guoliang Tian)
- GPA: 3.88/4.00 (rank: 2/45)
- Courses: Advanced Linear Algebra II (H) (100), Probability Theory (100), Mathematical Statistics (100), Computational Statistics (100), Statistical Linear Models (A^+), Ordinary Differential Equations A (A^+), Time Series Analysis (A^+), Real Analysis (A^+)
- Selected to _The Second Phase of The Elite Program_ of the Department of Statistics and Data Science of Southern University of Science and Technology

Southern University of Science and Technology, China _2023.9 − Present_
M.S., Math (Supervisor: Prof. Bingyi Jing)

EXPERIENCE

The Chinese University of Hong Kong, Shenzhen **Research Intern**
Missing data imputation and clustering via online high rank matrix completion _2022.1 − 2022.3_
- Conducted missing data imputation and clustering missions on the real medical data from some hospital in Shenzhen, which are about atherosclerosis.
- Evaluated the performance of transductive learning on the medical data using online high rank matrix completion method. Performed large-scale subspace clustering via k-factorization and compared with other methods.

The Chinese University of Hong Kong, Shenzhen **Research Intern**
Kernel-based selective sampling-based scalable sparse subspace clustering _2021.7 − 2021.9_
- Learned sparse subspace clustering (SSC) and selective sampling-based scalable sparse subspace clustering (S^5C). Derived the kernel version of S^5C for non-linear cases (KS^5C).
- Learned the alternating direction method of multipliers (ADMM) and the cyclic coordinate descent algorithm. Solved LASSO problems in KS^5C by using the cyclic coordinate descent algorithm.
- Implemented the code for KS^5C and tested it. Compared with S^5C, there is an improvement, but is not significant, so no paper has been published. [code]

North Carolina State University **Remote Program**
The pandemic and social mobilization: agenda-building in the networked public sphere _2021.7 − 2021.8_
- Analyzed the corpus using a quantitative content analysis method, where the corpus was Weibo posts related to the debate on COVID-19. Created a code sheet and determined the content by the code sheet. [poster]
- Acknowledgment from "The Pandemic and Social Mobilization: Agenda-Building in the Networked Public Sphere"(ICA 2022).

PROJECTS

Statistical Analysis of Short Video with R [code] [report] [slides] _2021.10 − 2021.12_
- Constructed a linear model to perform regression analysis on the number of likes of short videos. Conducted permutation test and bootstrapping to verify.
- Established clustering and generative models based on the number of likes, comments, and shares, as well as a classification model using type as the label.

Data Mining Applications in DC Crime [code] [report] _2021.4 − 2021.5_
- Analyzed the crimes over geography and time by data preprocessing and exploratory data analysis.
- Classified and clustered the geography by the crime events. Models included decision tree, KNN, random forest, AdaBoost, GBDT, K-means, and DBSCAN.

Self-contained Report on Discrete Mathematics [report] _2020.5 − 2020.6_
- Stated the methods of solving linear recurrence relations in the language of linear algebra.

Teaching and Seminar

TA, Mathematical Statistics	*2024.3 − Present*
TA, Multivariate Statistical Analysis	*2024.3 − Present*
Seminar, Biostatistics and Computational Statistics	*2021.3 − 2021.6*

Selected Awards and Honors

- China National Encouragement Scholarship *National − 2021.11*
- The 12th Chinese Mathematics Competitions *Provincial, FirstPrize − 2020.12*
- China National Encouragement Scholarship *National − 2020.11*

Skills and Languages

- R, Python, MATLAB, Java, LaTeX
- English (TOEFL: 93, GRE: 320)
- Knowledge about Large Language Models (LLMs).

Additional Information

- Volunteer: 2021 Shenzhen International Conference on Frontiers of Statistics and Data Science
- Coursework: `https://github.com/Hanbin-Liu/sustech-assign`