Yufan Zheng

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EDUCATION

NanFang College of Sun Yat-Sen University, Electrical and Computer Engineering Guangdong, China
Bachelor of Engineering Sep 2018 - Jun 2022

- GPA **86.36/100** (3.53/5.0), Major in Computer Science and Technology.
- Scholarship: Outstanding Graduates (2022), **Nation Scholarship** (2019-2020), Second price Scholarship (2019-2020), Third price Scholarship (2020-2021).

PUBLICATIONS

Journal Articles

- Zhan C, **Zheng Y**, Shao L, Chen G, Zhang H. Modeling the Spread Dynamics of Multiple-variant Coronavirus Disease under Public Health Interventions: A General Framework. Information Science, 2023 (**SCI, Q1**).
- Zhan C, Jiang W, **Zheng Y**, Lu J, Zhang Q. A data-driven study of active meteorological stations and the factors motivating their establishment. Sustainable Energy Technologies and Assessments, 2023 (**SCI, Q1**).
- Zhan C, **Zheng Y**, Zhang H, Wen Q. Random-Forest-Bagging broad learning system with applications for COVID-19 pandemic. IEEE Internet of Things Journal, 2021 (**SCI, Q1**).
- Zhan C, **Zheng Y**, Lai Z, Hao T, Li B. Identifying epidemic spreading dynamics of COVID-19 by pseudocoevolutionary simulated annealing optimizers. Neural Computing and Applications, 2020 (**SCI, Q2**).

Conference Proceedings

- Min H, Wu K, Tan M, Lin J, **Zheng Y**, Zhan C. Ensemble Learning for Crowdfunding Dynamics: JingDong Crowdfunding Projects. International Conference on Neural Computing for Advanced Applications. Springer, Singapore, 2022 (**EI**).
- **Zheng Y**, Zhen Q, Tan M, Hu H, Zhan C. COVID-19's impact on the box office: machine learning and difference-in-difference. International Conference on Intelligent Systems and Knowledge Engineering. IEEE, 2021 (**EI**).
- Wu S, Hu H, **Zheng Y**, Zhen Q, Zhang S, Zhan C. The impact of COVID-19 on online games: Machine learning and Difference-In-Difference. CCF Conference on Computer Supported Cooperative Work and Social Computing. Springer, Singapore, 2021 (**EI**).
- Li J, **Zheng Y**, Hu H, Lu J, Zhan C. Predicting video game sales based on machine learning and hybrid based feature selection. International Conference on Intelligent Systems and Knowledge Engineering. IEEE, 2021 (**EI**).
- Lin J, Tan M, **Zheng Y**, Wu K, Zhan C. Detection capability prediction based on broad learning system during the COVID-19 pandemic. International Conference on Intelligent Systems and Knowledge Engineering. IEEE, 2021 (**EI**).
- Wu S, **Zheng Y**, Lai Z, Wu F, Zhan C. Movie box office prediction based on ensemble learning. IEEE Symposium on Product Compliance Engineering-Asia. IEEE, 2019 (**EI**).

AWARDS AND PRIZES

- Provincial third prize, awarded by China Undergraduate Mathematical Contest in Modeling. Oct 2021
- Provincial College Students' Innovative Entrepreneurial Training Plan Program. 2020 - 2021
- Provincial College Students' Innovative Entrepreneurial Training Plan Program. 2019 - 2020
- Merit award paper in 2019 IEEE International Symposium on Product Compliance Engineering-Asia. Oct 2019

RESEARCH EXPERIENCE

Research Interests

My main interest lies in machine learning, data mining, complex network, and computational epidemiology with their application in public health, healthcare, and entertainment.

City University of Hong Kong, Electrical and Engineering Department & Biomedical Sciences Department

Research Assistant, Supervisor: **Prof. Eric Wong**, Advisor: **Prof. Sean Yuan** Hong Kong, China Dec 2022 - Present

Most mosquito-borne diseases are public health threats. To help monitor the mosquitoes transmission, we developed the prediction models and explored the association between different factors and mosquito activity.

- Developed the prediction models for the extensiveness and abundance of mosquitoes based on the Distributed Lag Nonlinear Model.
- Evaluated the performance of models based on Step-WAIC and cross-validation.
- Explored the effect of human mobility and meteorological lag on mosquito activity based on comparative analysis and sensitivity analysis.

Research project: Interventions evaluation based on computational epidemiology. Aug 2021 - Dec 2022

Supervisor: **Prof. Choujun Zhan**, Advisor: **Prof. Haijun Zhang** and **Prof. Guanrong Chen** (IEEE Life Fellow)

To help the world capture the process of virus mutations and re-evaluate the impact of public health interventions under realistic scenarios considering multiple variants, we focus on improving the epidemiology model and intervention design.

- Participated in the experimental design, programmed modeling independently, and wrote the paper.
- Proposed an epidemiological framework for simulating the multi-directional mutation process and transmission under the scenario considering multiple variants and massive vaccinations.
- Evaluated single and combined public health interventions, which included non-pharmaceutical interventions, pharmaceutical interventions, and vaccine interventions based on the proposed framework.

NanFang College of Sun Yat-Sen University, Research Institute of Big Data and Artificial Intelligence
Research Assistant, Supervisor: **Prof. Choujun Zhan** Guangdong, China Mar 2019 - Mar 2022

1) Modeling Study in Epidemiology.

Epidemic transmission is a complex system influenced by multiple factors. To help humans better control the epidemic, we conducted three research projects aimed at quantifying, simulating and predicting the transmission of the epidemic.

- Completed research proposal, experimental design, paper framework design, improved model design, and programming modeling; led the team on two research projects in data collection and cleaning, and wrote the manuscripts.
- Constructed a COVID-19 data set containing 184 countries and 1241 regions from December 8, 2019 to October 15, 2021, based on public health departments and multiple data sources from countries around the world.
- Developed the difference-in-difference model to quantify the impact of COVID-19 on the box office and online game players.
- Improved an epidemiological model combining intercity migration networks to describe the intercity transmission of the COVID-19 pandemic in China, and developed a simulated annealing to optimize the model.
- Proposed an improved machine learning model to predict COVID-19 transmission, and developed machine learning model in prediction for medical resource requirements.

2) Modeling Study in Entertainment.

Predicting the operating trend of entertainment media helps publishers and investors adjust their strategies effectively and promptly to maximize profits. To achieve this aim, we focus on analyzing and modeling box office and video game sales.

- Completed experimental design, paper framework design, hybrid method design, programming modeling, data collection and cleaning; led the team on a research project in programming and wrote a manuscript.
- Collected and constructed a historical video game sales data set containing 37,841 games and 17 gaming platforms in Japan, Europe and the United States between 1970 and 2018. Collected and constructed a global movie statistics platform, a US box office data set containing 13,737 films from 1980 to 2017 was constructed, and a Chinese Box office data set containing 3,612 films from 2011 to 2019.
- Proposed a novel hybrid feature selection machine learning method to forecast video game sales.
- Developed the box office prediction model based on ensemble learning.

PROFESSIONAL EXPERIENCE

Huangpu Institute of Materials, Industrial Software Development Division
Algorithm Technician Guangdong, China Jun 2022 - Nov 2022

- Designed industrial drawing recommendation framework, including collaborative filtering based on drawing similarity matrix, and model-based method based on cluster models and classification models.
- Wrote and revised research papers with research collaborators in artificial intelligence; participated in 1 co-authored journal and 1 co-authored conference publication.

Intern of algorithm Guangdong, China Mar 2022 - Jun 2022

- Developed blood pressure monitoring model and road condition detection model based on machine learning with sensor data, and participated in the research of the stocker controller system requirements.

CONFERENCE ACTIVITIES

- Best volunteer at International Conference on Neural Computing for Advanced Applications 2021, held in Guangzhou, China, led the volunteers' group in preparation and implementation. Aug 2021
- Participated and delivered an oral presentation in the 2019 IEEE International Symposium on Product Compliance Engineering-Asia, held in Hong Kong, China. Oct 2019

ADDITIONAL INFORMATION

Language Skills

English (College English Test 6 in China); Mandarin (native); Cantonese (basic).

Computer Skills

Python (Scikit-learn, PyTorch, NumPy, Pandas, SciPy, Matplotlib), R, MATLAB, LaTeX, C, Git, Linux, Docker, MySQL.