# Yufan Zheng

Tel: (+86) 188-2293-5122 | E-mail: zhjpre@gmail.com | Address: Guangdong, China

## 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.
- Core Courses: Advanced Mathematics (89), Data Structure and Algorithm (92), Discrete Mathematics (91), Data Principles and Applications (87).

## AWARDS AND PRIZES

- Outstanding Graduates, awarded by NanFang College of Sun Yat-Sen University. Jun 2021
- Provincial third prize, awarded by China Undergraduate Mathematical Contest in Modeling. Oct 2021
- Third price Scholarship, awarded by NanFang College of Sun Yat-Sen University. 2020 - 2021
- Nation Scholarship, awarded by Ministry of Education of the People's Republic of China. 2019 - 2020
- Second price Scholarship, awarded by NanFang College of Sun Yat-Sen University. 2019 - 2020
- Merit award paper in 2019 IEEE International Symposium on Product Compliance Engineering-Asia. Oct 2019

## PUBLICATIONS

**Peer-reviewed Journal Articles**

- 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 (**SCI** Q2, **in revision**).
- Zhan C, **Zheng Y**, Zhang H, Wen Q. Random-Forest-Bagging broad learning system with applications for COVID-19 pandemic[J]. IEEE Internet of Things Journal, 2021 (**SCI** Q1, 2020 IF: 9.936).
- Zhan C, **Zheng Y**, Lai Z, Hao T, Li B. Identifying epidemic spreading dynamics of COVID-19 by pseudocoevolutionary simulated annealing optimizers[J]. Neural Computing and Applications, 2020: 1-14 (**SCI** Q1, 2020 IF:5.606).

**Conference Papers**

- Min H, Wu K, Tan M, Lin, **Zheng Y**, Zhan C. Ensemble Learning for Crowdfunding Dynamics: JingDong Crowdfunding Projects [C]//International Conference on Neural Computing for Advanced Applications, Springer, Singapore, 2022 (**EI, accepted**).
- **Zheng Y**, Zhen Q, Tan M, Hu H, Zhan C. COVID-19's impact on the box office: machine learning and difference-in-difference[C]//2021 16th International Conference on Intelligent Systems and Knowledge Engineering (ISKE). IEEE, 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[C]//2021 16th International Conference on Intelligent Systems and Knowledge Engineering (ISKE). 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[C]//2021 16th International Conference on Intelligent Systems and Knowledge Engineering (ISKE). 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**).
- 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 (ISPCE-CN). IEEE, 2019 (**EI**).

## RESEARCH EXPERIENCE AND ACADEMIC ACTIVITIES

### 1. Ongoing Researches

#### 1) Interventions evaluation based on computational epidemiology.

Supervisor: **Prof. Choujun Zhan**, Advisor: **Prof. Guanrong Chen** (IEEE Fellow, Member of the Academia Europaea)
Proposed an epidemiological framework for simulating the multi-directional mutation process and transmission under the scenario considering multiple variants and massive vaccinations. And, evaluated single and combined interventions, which included non-pharmaceutical interventions, pharmaceutical interventions, and vaccine interventions.

- Participated in the experimental design, independently programed modeling, and wrote the first draft of the paper.
- The first draft of peer-reviewed journal paper is in preparation.

#### 2) Data Driven modeling and analysis between meteorology and economic.

Supervisor: **Prof. Choujun Zhan**
Analyzed the meteorological station characteristics; quantified the relationships between the number of stations and economic factors using correlation analyses and information entropy analyses; developed the meteorological stations forecasting modeling based on deep learning and machine learning.

- Participated in the experimental and paper framework design, and wrote the first draft in revision on Sustainable Energy Technologies and Assessments.

**2. 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

I have three years of academic research experience studying with Prof. Zhan. Over this period, I have received full academic training, from literature survey and experimental design to paper writing, revising, and publishing. I have been working on machine learning, deep learning, data analysis, and computational modeling with applications in epidemiology and entertainment media. I have achieved several academic achievements in both directions.

**1) Epidemiology and Medicine study.**

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

- Completed in research proposal, experimental design, paper framework design and improved model design, programming modeling; led the team on two research projects in data collection and cleaning, and wrote the manuscripts.
- Proposed the difference-in-difference model to quantify the impact of COVID-19 on the box office and online game players.
- Improved an epidemiological model (SEIR-Migration) combining intercity migration networks to describe the intercity transmission of the COVID-19 pandemic in China, and proposed a pseudo-co-evolutionary simulated annealing algorithm to optimize the model.
- Proposed an improved machine learning model (RF-Bagging-BLS) to predict COVID-19 transmission, and applied machine learning model in prediction for medical resource requirements.
- Based on public health departments and multiple data sources from countries around the world, a COVID-19 data set containing 184 countries and 1241 regions from December 8, 2019 to October 15, 2021 was constructed.
- Wrote 1 journal paper and 3 conference papers which have been published; participated 1 co-authored journal paper publish.

**2) Entertainment media study.**

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

- Completed in experimental design, paper framework design and hybrid method design, programming modeling, data collection and cleaning; led the team on a research project in programming and wrote a manuscript.
- Proposed a novel hybrid feature selection machine learning method (PCC-RFFS) to forecast video game sales.
- Developed a box office prediction model based on ensemble learning.
- Based on a video game statistics platform (VGcharts), 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 was constructed.
- Based on a movie statistics platform (Box Office Mojo), 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 was constructed based on a movie statistics platform (Manyan Movie).
- Wrote 1 conference paper and revised 1 conference paper which have been published; participated 1 co-authored conference paper publish.

## PROFESSIONAL EXPERIENCE

**1. Huangpu Institute of Materials, Industrial Software Development Division**

**Algorithm Engineering** Guangdong, China Mar 2022 - Present

Responsible for the improvement and predictive modeling of traditional industrial control using machine learning, deep learning, and other techniques to assist in algorithm design in industrial software development.

- Designed and developed blood pressure monitoring model and road condition detection model based on machine learning with sensor data.
- Designed industrial drawing recommendation framework, including collaborative filtering based on drawing similarity matrix, and model-based method based on cluster models and classification models.

## CONFERENCE ACTIVITIES

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

## ADDITIONAL INFORMATION

**Research Interests**

My main interest lies in machine learning, computational epidemiology, and complex network, including:

- Epidemic prevention measures optimization based on machine learning and epidemiological modeling.
- Time series modeling for public health, healthcare, entertainment media, and industry by machine learning.

**Language Skills**

English (College English Test 6, CET6), Preparing for the IELTS test; Mandarin.

**Computer Skills**

Python (PyTorch, Scikit-learn, Numpy, Pandas, Matplotlib), MATLAB, C, Git, Linux, LaTeX.