Fabing Lin

Department of Electrical and Computer Engineering
Nanfang College of Sun Yat-sen University, Guangdong, China
+86 132-0503-4032 · fabing0217@gmail.com
https://fabingl.github.io/ · FabinGL

Education

Nanfang College of Sun Yat-sen University Guangzhou, China
Candidate for Bachelor of Computer Science and Technology *Sep 2019 – Jun 2023*

- **GPA** : 82.35 / 100 (3.07/5.0)
- **Core Curriculum** : Machine Learning(100),Deep Learning(95.9),Complex Variable Function and Integral Transformation(94.2)

Publications

Journal Paper

- Zhan, C., **Lin, F.**, Wu, K., Chi L, Tse.K.Analysis of the main influencing factors affecting the transmission of the COVID-19 pandemic.IEEE journal of Biomedical and Health Informatics.**(SCI,IF=7.021,Q1,Contributing.)**
- Zhan, C., Jiang, W., **Lin, F.**, Zhang, S., Li, B. (2022). A decomposition-ensemble broad learning system for AQI forecasting. Neural Computing and Applications, 1-12.**(SCI,2022,IF=5.1,Q2.)**

Conference Paper

- Min, H., **Lin, F.**, Wu, K.,Lu, J.,Hou, Z.,Zhan, C. (2022, November).Broad learning system based on Savitzky–Golay filter and variational mode decomposition for short-term load forecasting. IEEE International Symposium on Product Compliance Engineering-Asia.**(EI)**
- Jiang, W., Fu, Y., **Lin, F.**, Liu, J.,Zhan, C. (2021, August). Empirical Mode Decomposition Based Deep Neural Networks for AQI Forecasting. In International Conference on Neural Computing for Advanced Applications (pp. 757-769). Springer, Singapore.**(EI)**
- Wu, K., Lu, J., **Lin, F.**, Huang, Y., Zhan, C. A Realistic Network Traffic Forecasting Method Based on VMD and LSTM Network[C]//International Symposium on Circuits and Systems 2023 (ISCAS 2023). IEEE, **(EI)**

Professional Experience

Research Institute of Big Data and Artificail Intelligence (RIBDAI) Guangzhou, China
Nanfang College of Sun Yat-sen University **Manager: Prof. Choujun Zhan**
Position: Research Assistant *Mar 2020 – Present*

Research on Air Quality Prediction

- Based on the collection of air quality factors based on web crawler technology, a daily timing crawler is used to construct a data set, which includes the period from 2019 to 2021 The air quality data of more than 3,000 sites in China in 2019.
- Combining empirical mode decomposition and its derivative methods with machine learning, an improved machine learning model Decompositionensemble is proposed BLS solves the problem that the original features do not contain frequency domain features, and the final results of the experiment are compared with other 24 machines with a single feature. Machine learning modeling, the proposed method has the effect of improving the accuracy of the model in the predictive modeling of air quality.

Research on the confounding effects of multiple factors of epidemics

- Using machine learning and integrated learning models, a total of 10 models are used to model and analyze multi-factor data and epidemic data, aiming at different A total of more than 100 machine learning combinations have been constructed in the application scenarios, and more than 10,000 hyperparameter combination optimizations have been tried for each type of machine learning.A general model and seventy-six precise models were obtained, and the R-Squared of the model reached 0.9.
- The machine learning model constructed in a variety of application scenarios is based on SHAP (SHapley Additive exPlanations) to build an interpretable learning analysis system, which quantifies the impact of different factors on the spread of the epidemic and calculates the impact of multiple factors on the spread of the epidemic.

Glomerular Filtration Rate Modeling Study

- In cooperation with the Third Affiliated Hospital of Sun Yat-sen University to study glomerular filtration rate (mGFR) modeling, we collected and sorted out the physical condition and various index data of more than 3,000 patients. Organize it into a usable dataset.
- Modeling using machine learning and ensemble learning to predict eGFR (predicted mGFR), and The New England Journal of Medicine (The New England Journal of Medicine, NEJM)'s same subject research "New Creatinine- and Cystatin C–Based Equations to Compared with "Estimate GFR without Race", our method has higher model accuracy in the patient data of Sun Yat-Sen Third Hospital. In actual application scenarios, it can enable patients to diagnose diseases with the least cost.

Activities

International Conference on Neural Computing for Advanced Applications 2021 Guang Zhou, China
Volunteer *Aug 2021*

Assisted in the organization and conduct of academic conferences, led the group in the preparation and commissioning of conference site equipment, and the coordination of conference site services.

IEEE International Symposium on Product Compliance Engineering-Asia 2022 Guang Zhou, China
Best Volunteer Team *Nov 2022*

Organize team members to complete the layout of the meeting and other related matters.

IEEE International Symposium on Product Compliance Engineering-Asia 2022 Guang Zhou, China
Attendee and Speaker *Nov 2022*

Details the application of the ensemble power machine learning model to the New York lot.

Awards

- Excellent Bachelor Thesis *Mar 2023*
- Third prize in 2022 China Undergraduate Mathematical Contest in Modeling *Oct 2022*
- Third prize Scholarship(awarded to the top 21%) *2021 – 2022*
- Third prize in 2021 China Undergraduate Mathematical Contest in Modeling *Oct 2021*

Certificates

- National College Students' Innovative Entrepreneurial Training Plan Program, Network traffic forecasting system based on deep learning, Principal, **Leader** *2022 – 2023*
- Software copyright, User Adaptive Preference Recommendation System Based on Graph Neural Network *2022*
- National College Students' Innovative Entrepreneurial Training Plan Program, Based on the graph neural network user adaptive preference recommendation system,participant.*2021 – 2022*
- Software copyright, Data Analysis and Prediction System of Chinese Movie Box Office Based on Machine Learning *2020*

Work Experience

- 3D-space Co., Ltd. conducts interdisciplinary research on atmospheric science and machine learning.**Practice** *Apr 2023 – Present*

Research Interests

I am interested in Time-series, Machine learning, Deep learning. My current focuses include:

- Time series prediction modeling.
- Time Series Causal Analysis.
- Atmospheric Science and Machine Learning Interdisciplinary.
- Interdisciplinary of Medicine and Machine Learning.

Skills

Programming Python(pandas, SHAP, matplotlib, pytorch, scikit-learn), Java, C, Maltab, LaTeX
Languages Mandarin,IELTS(Preparing)