

PROFILE

A competent, motivated Ph.D. student in **Machine/Deep learning**, **Data mining** with applications in **industrial big data** including **Anomaly/Outlier detection**, **Statistical process monitoring**, and **Product quality prediction**. Possesses specific expertise in Algorithms (neural networks, statistical theory), Programming (Python, MATLAB, Julia, C, and SQL). Good at team-working, communicating, solving problems in projects.

EDUCATION

East China University of Science and Technology

Ph.D. in Control Science and Engineering

Shanghai, China

Sep 2017 – Jun 2022 (expected)

East China University of Science and Technology

B.S. in Automation GPA: 3.75/ 4.0 (#2 / 84)

Shanghai, China

Sep 2013 - Jun 2017

WORK EXPERIENCE

Red Avenue Group

Data Scientist Intern

Shanghai, China

Aug 2018 - Aug 2020

- Description: Responsible for processing data from historical and real-time database, analyzing the correlation between different attributes, using machine learning algorithms to reduce the frequency of laboratory analysis and improve production efficiency.

HONORS

CSC Fellowship, 2020

ZHANG-JIANGSHU Fellowship, 2019

Outstanding student award, 2014-2019

First prize, Academic scholarship, 2016-2018

Outstanding Graduate in Shanghai, 2017

National Scholarship in China (#1/84), 2016

First prize, National automation application competition, Rockwell Automation, 2016

Shanghai Scholarship (#4/84), 2015

Second prize, National mathematical modeling competition, 2015

PROJECTS

Decentralized quality monitoring of PTA production based on neural networks

Sep 2017 - present

- Description: Research projects by National Natural Science Foundation. Responsible for developing neural network based algorithms to improve the predictive performance of key performance indicators in PTA production, and detect quality-related anomalies for reducing unnecessary losses.

Plant-level nonlinear fault diagnosis based on deep correlation feature learning

Sep 2018 - present

- Description: Research projects by National Natural Science Foundation. Responsible for fusing statistical algorithms and neural networks for feature engineering and improve the classification performance of nonlinear faults.

Data-driven prediction of product quality during tire material production

Aug 2018 - Aug 2020

- Description: Responsible for feature engineering and modeling the production process using support vector machine, intelligent optimization algorithm, neural networks. Develop *Python* software for guiding the production to increase profit. Two Chinese public patents and a registered software have been published.

Custom product design based on rapid modeling and 3D printing

Jan 2016 - Jun 2017

- Description: Responsible for developing a VBA plug-in for rapid modeling in SolidWorks according to the model components required by customers, and use 3D printing to make personalized molds.

PUBLICATIONS

Journal papers:

1. **Shifu Yan** and Xuefeng Yan. "Design teacher and supervised dual stacked auto-encoders for quality-relevant fault detection in industrial process." *Applied Soft Computing*, vol. 81, Aug. 2019. (IF: 5.472)
2. **Shifu Yan** and Xuefeng Yan. "Quality-Driven Autoencoder for Nonlinear Quality-Related and Process-Related Fault Detection Based on Least-Squares Regularization and Enhanced Statistics." *Industrial & Engineering Chemistry Research*, vol. 59, no. 26, pp. 12136-12143, June, 2020. (IF: 3.573)
3. **Shifu Yan** and Xuefeng Yan. "Using Labeled Autoencoder to Supervise Neural Network Combined with k -Nearest Neighbor for Visual Industrial Process Monitoring." *Industrial & Engineering Chemistry Research*, vol. 58, no. 23, pp. 9952-9958, May. 2019. (IF: 3.573; Supplementary Cover)
4. **Shifu Yan** and Xuefeng Yan. "Joint monitoring of multiple quality-related indicators in nonlinear processes based on multi-task learning." *Measurement*, vol. 165, 108158, Dec. 2020. (IF: 3.364)
5. **Shifu Yan**, Junping Huang and Xuefeng Yan. "Monitoring of quality-relevant and quality-irrelevant blocks with characteristic-similar variables based on self-organizing map and kernel approaches." *Journal of Process Control*, vol. 73, pp. 103-112, Jan. 2019. (IF: 3.624)
6. **Shifu Yan**, Qingchao Jiang, Haiyong Zheng and Xuefeng Yan. "Quality-relevant dynamic process monitoring based on dynamic total slow feature regression model." *Measurement Science and Technology*, vol. 31, 2020. (IF: 1.857)
7. Junping Huang[‡], **Shifu Yan**[‡] and Xuefeng Yan. "Robust chemical process monitoring based on CDC - MVT - PCA eliminating outliers and optimally selecting principal component." *Canadian Journal of Chemical Engineering*, vol. 97, no. 6, pp. 1848-1857, 2019. (IF: 1.687)
8. Qingchao Jiang, **Shifu Yan**, Xuefeng Yan, Hui Yi, and Furong Gao. "Data-Driven 2D Deep Correlated Representation Learning for Nonlinear Batch Process Monitoring." *IEEE Transactions on Industrial Informatics*, vol. 16, no. 4, pp. 2839 - 2848, 2020. (IF: 9.112)
9. Qingchao Jiang, **Shifu Yan**, Xuefeng Yan, Shutian Chen and Jinggao Sun. "Data-driven individual-joint learning framework for nonlinear process monitoring." *Control Engineering Practice*, vol. 95, 2020. (IF: 3.193)
10. Qingchao Jiang, Shifu Yan, Hui Cheng and Xuefeng Yan. "Local-Global Modeling and Distributed Computing Framework for Nonlinear Plant-Wide Process Monitoring with Industrial Big Data." *IEEE Transactions on Neural Network and Learning Systems*, 2020. (IF: 8.793)

Patents:

1. Step-by-step modeling for multi-component prediction of industrial p-tertylphenol synthesis reaction (in Chinese), CN110867216A, 2020.
2. A method for predicting the quality of phenolic resin products under the uncertainty of raw materials (in Chinese), CN111103420A, 2020.