Shifu Yan

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EDUCATION

East China University of Science and Technology *Shanghai, China*
Bachelor of Engineering in Automation *Sep 2013 - Jun 2017*

- GPA: 3.7448 / 4.0 (rank: 2 / 84).
- Honors/Awards: First-class academic scholarship (rank: 1 / 84; 2016, 2017), Excellent Student Award (2014 - 2016).
- Relevant Coursework: C/C++, MATLAB, Python, Artificial Intelligence, Automatic Control.

East China University of Science and Technology *Shanghai, China*
Ph. D Candidate in Control Science and Engineering *Sep 2017 - present*

- Honors/Awards: First-class academic scholarship (rank: 1 / 79; 2018), Excellent Student Award (2018, 2019).
- My research interests include Machine (Deep) learning, Data mining, Anomaly (Outlier) detection and I am dedicating to the applications of such algorithms in industrial big data.

HONORS & AWARDS

Shanghai Scholarship (#4 / 84)	*Sep 2015*
National Automation Application Competition hosted by Rockwell (first prize)	*Aug 2016*
National Scholarship (Highest scholarship in China, #1 / 84)	*Sep 2016*
Excellent Graduate in Shanghai	*Jun 2017*

RESEARCH EXPERIENCE

East China University of Science and Technology *Sep 2017 - present*
Key Laboratory of Advanced Control and Optimization for Chemical Process Ministry of Education

- Topic:
  1) Key performance indicator related predicting and monitoring based on deep learning;
  2) Data-driven plant-wide nonlinear process monitoring.
- Content:
  1) Identify abnormal production conditions by detecting outliers in the complex multivariate data in industrial processes based on machine learning and statistics;
  2) Predict and monitor key performance indicators that cannot be measured in time to reduce unnecessary downtime and economic losses.

PROFESSIONAL EXPERIENCE

Custom product design based on 3D printing *Jan 2016 – Jun 2017*
National innovation project for college student

- Responsible for developing a plug-in for rapid modeling in SolidWorks using VBA.

Data-driven prediction of key components of phenolic resin *Aug 2018 – present*
Cooperate with Red Avenue, a public company

- Responsible for modeling the production process using support vector machine, Intelligent optimization algorithm, neural networks and developing relevant software using *Python* for guiding the production to increase profit.
- At present, the software is registered and running for 6 months, a Chinese patent is submitted.

PUBLICATIONS

1. Qingchao Jiang, **Shifu Yan**, Xuefeng Yan, Shutian Chen and Jinggao Sun. "Data-driven individual-joint learning framework for nonlinear process monitoring." *Control Engineering Practice*, accepted. (*JCR: Q1; IF: 3.232*)

2. 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*, in press. (*JCR: Q1; IF: 7.377*)

3. **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. (*JCR: Q1; IF: 4.873*)

4. **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. (*JCR: Q1; IF: 3.375; Published as supplementary Cover*)

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. (*JCR: Q2; IF: 3.316*)

6. 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. (*JCR: Q3; IF: 1.61*)

Papers under reviewed:

7. **Shifu Yan** and Xuefeng Yan. “Deep most correlated representations of process variables for nonlinear quality-relevant fault detection and isolation.” Submitted to *IEEE Transactions on Neural Network and Learning Systems*, major revision.

8. 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.” Submitted to IEEE Transactions on Neural Network and Learning Systems.

9. **Shifu Yan** and Xuefeng Yan. “Nonlinear quality-relevant fault detection based on adversarial learning and distribution contribution of process variables to quality.” Submitted to *IEEE Transactions on Industrial Electronics*.

10. **Shifu Yan** and Xuefeng Yan. “Learning output relevant features by joint autoencoder to improve kernel ridge regression.” Submitted to *IEEE Transactions on Cybernetics*.

11. **Shifu Yan** and Xuefeng Yan. “Joint monitoring of multiple quality-related indicators in nonlinear processes based on multi-task learning.” Submitted to *Measurement*.