Penglong Lian (Pancras)

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EDUCATION

Xi'an University of Technology (XUT), Xi'an, China **Sept. 2017 - July 2020**

M.Sc. in Control Engineering (*Advisor: Prof. Han Liu****)***

- G.P.A.: 88.0/100 (ranked top 5%)

Northwest Minzu University (NWMU), Lanzhou, China **Sept. 2013 - June 2017**

B.Sc. in Electrical Engineering and Automation (*Advisor: Prof. Shengguo Zhang****)***

- G.P.A.: 83.4/100 (ranked: 8/182)

RESEARCH INTERESTS

- Data analysis in manufacturing field (data-driven modeling prediction, data mining), Machine learning, Deep learning, Algorithm optimization.

RESEARCH PUBLICATION

- **Penglong Lian**, Qi Zhao, Yanmin Cui. An imputation method based on dummy variable and unsupervised learning for electricity consumption data with missing values [C]. IEEE CIYCEE 2021, 15-17 Dec, Chengdu, China. DOI: 10.1109/CIYCEE53554.2021.9676809
- **Penglong Lian**, Han Liu, Xiao Wang, et al. Soft sensor based on DBN-IPSO-SVR approach for rotor thermal deformation prediction of rotary air-preheater [J]. Measurement, 2020, 165. DOI: 10.1016/j.measurement.2020.108109
- **Penglong Lian**, Han Liu, Xiao Wang, et al. Soft Sensor Method Based on Deep Belief Network for Rotor Thermal Deformation of Rotary Air Preheater [C]. IEEE CAC 2019, 22-24 Nov, Hangzhou, China. DOI: 10.1109/CAC48633.2019.8996298
- Liu Q, **Penglong Lian**, Han Liu. Natural Gas Load Forecasting using Fuzzy Sigmoid Kernel Support Vector Machines with Genetic Algorithms [C]. IEEE CAC 2019, 22-24 Nov, Hangzhou, China. DOI: 10.1109/CAC48633.2019.8997284
- Han Liu, **Penglong Lian**. Soft sensor based on CDBN-SVR approach for rotor thermal deformation prediction of rotary air-preheater: China [P]. 2019-11-19.
- Han Liu, **Penglong Lian,** Xiuqin Fang. Deep learning method of soft sensor for rotor thermal deformation of air preheater: China [P]. 2019-09-17.

WORKING & RESEARCH EXPERIENCE

Epichust Technology Co., Ltd. Sept. 2020 - ***Present***

Data Analysis Engineer, Artificial Intelligence Department Wuhan, China

- **Work assignments:** Data analysis for industrial needs (Data processing, Data mining, Data statistics) and AI modeling (Machine Learning, Deep Learning); PYQT5 interface development.
- **Contribution:** Developed a clustering method of automatic segmentation based on real data for industrial process; Developed a predictive maintenance method for lathe device; Developed an AI prediction method for production line efficiency; Designed a time analysis interface.

Project: "*Abnormal detection based on deep learning for smart grid*" Aug. 2020 – Sept. 2021

Research Assistant, Hunan University (*The project was funded by Guangxi grid*) Changsha, China

- **Overall aim:** The objectives of this project are to improve efficiency and availability of abnormal detection for smart grid by data-driven modeling based on real big data from smart grid, realizing the rapid and accurate outlier detection classification for smart grid.
- **Work assignments:** Project monitoring, Literature research, Data collection, Data analysis, Model algorithm (Machine learning, Deep learning).
- **Contribution:** Developed a novel unsupervised learning method based on deep learning (GAN) for missing values imputation (Generate the complete dataset); Trained a novel multi-category abnormal diagnosis model with Convolutional Neural Network (CNN) and Long-Short Term Memory (LSTM) based on grid consumption dataset (the model was applied in smart grid).

Project: "*Soft sensor prediction based on deep learning for complex industrial process*"

Sept. 2018 - June 2020

Postgraduate Project (*was supported by the Chinese National Natural Science Foundation*) Xi'an, China

- **Overall aim:** The objectives of this project are to estimate the accurate deformation values for the existing sealing technology by data-driven modeling based on real data from industry and to increase reliability of rotary air-preheater.
- **Work assignments:** Literature research, Data analysis, Model algorithm and optimization (Deep learning, Machine learning, Optimistic algorithm), Statistical method.
- **Contribution:** Developed a data pre-processing method for complex industrial process; Developed a novel data-driven model of soft sensor based on AI technologies for rotor thermal deformation prediction; Developed an improved particle swarm optimization algorithm; Implemented the PYQT5 interface.

ACADEMIC ACTIVITIES

- "*Big Data and Artificial Intelligence*" International Postgraduate Summer School in Hunan Province, Aug. 2020, Outstanding student.
- "*Chinese Automation Congress 2019*", Nov. 2019, **poster**; "*2021 IEEE 2nd China International Youth Conference on Electrical Engineering*", Dec 2021, **oral**.

SKILLS

- **Language:** Fluent in written and spoken English, proficient in Chinese Mandarin.
- **Software:** Microsoft Office, Latex, MySQL, Origin, Power BI, Adobe Photoshop, *etc*.
- **Programming:** Proficient in Python, MATLAB, C, C++, toolkits (e.g., TensorFlow, PyTorch, Scikit-learn).

HONORS & SCHOLARSHIPS

- Outstanding master thesis of XUT university July 2020
- Outstanding postgraduate of XUT university July 2020
- Second prize scholarship of XUT university for postgraduate students Sept. 2019
- Second prize scholarship of XUT university for postgraduate students Sept. 2018
- First prize scholarship of XUT university for postgraduate students Sept. 2017
- Outstanding bachelor thesis of NWMU university June 2017
- Second prize scholarship of NWMU university for graduate students Sept. 2016
- Second prize scholarship of NWMU university for graduate students Sept. 2015
- First prize scholarship of NWMU university for graduate students Sept. 2014