Xuetao Hu

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Education

Master's Degree in Electrical and Computer Engineering, Rice University 08/2021- Present

GPA: 3.752/4.0

Bachelor's Degree in Engineering, Zhejiang University (China) 09/2017-06/2021

Major in Electrical Engineering and Automation

GPA: 3.77/4.0

Awards and Honors: 09/2017- Present

- **3rd Class Scholarship** of **2018-2019 Academic Year (Zhejiang University)**
- **2nd Class Scholarship** of **2017-2018 Academic Year (Zhejiang University)**
- **2017-2018 Zhejiang Government Scholarship (Provincial)**

Research Experiences

***Researcher & Co-author*, Power Grid AI&ML, IEEE Conference Paper** 06/2020 - 08/2020

- Constructed a network to classify the fault type in electrical power system and make real-time monitoring
- Analyzed the electromechanical wave travel speed difference in different directions as a method to improve event location
- Paper accepted by IEEE Conference: *Data-driven Event Identification in the U.S. Power System Based on 2D-OLPP and RUSBoosting Trees*

Selected Projects

***Researcher*, Detection, Characterization, and Quantification of Stick-Slip in Hydraulic Systems** 02/2022 - now

- Designed a method to detect, characterize and quantify the stick-slip effect in hydraulic system
- Generated spectrograms of the signal series; Applied Uniform Manifold Approximation and Projection (UMAP) on spectrograms to reduce dimension; Performed K-means clustering on the UMAP projection results
- Realized wavelet transformation on time segments to extract wavelet features
- Built Bi-classifier on time segments using the wavelet features to detect the stick-slip time segments

***Researcher*, Medium Term Load Forecasting Considering Industry Correlation** 01/2021 - 07/2021

- Realized monthly load forecasting for a certain industry by considering its related industries
- Screened out strong related industries by calculating Pearson Correlation Coefficient
- Constructed Long Short-Term Memory (LSTM) forecasting model for load forecasting; Outputted forecast results and Calculated RMSE and MAPE
- Compared the prediction accuracy of LSTM with that of Linear Regression prediction model and Grey prediction model
- Realized a final prediction accuracy of more than 95% and remained stable

***Researcher*, Student Research Training Program (SRTP)** 04/2019 - 06/2020

- Applied Star Generative Adversarial Net (StarGAN) to realize voice conversion and conducted attack test
- Constructed the GAN network with extracting MFCC vector as feature for discrimination; realized many - to - many voice conversion
- Compared the attacking accuracy of starGAN with VAE which is another traditional method of voice conversion; the attacking accuracy increased from 64% to 91%
- Completed a national project and a paper: *Research on Voice Conversion Based on StarGan*

Skills and Hobbies

Software & System: Matlab, OrCadence, Multisim, Quartus, PSCAD, PSS/E, PSAT, Windows, Linux

Computer Languages: C, Python, Matlab, LadderLogic **Other:** Photography, Football