LITERATURE SURVEY

TOPIC : PREDICTING THE ENERGY OUTPUT OF WIND TURBINE BASED ON WEATHER CONDITION

S.NO	PAPER NAME AND AUTHOR	METHODOLOGY	ADVANTAGES	LIMITATIONS
1.	Augmented Convolutional Network for Wind Power Prediction: A New Recurrent Architecture Design with Spatial-temporal Image Inputs *Lilin Cheng, Haixiang Zang, Yan Xu, Zhinong Wei, and Guoqiang Sun.*	CNN is utilized as it is an efficient deep-learning model that is specialized in handling 2D-strucutured inputs. spatial-temporal analysis	The model contains bi-level recurrent paths and mutual attention connections, which can deal with a series of spatial image inputs for both wind power conversion and prediction.	The proposed method can merely utilize historical wind velocities and directions to realize spatial-temporal wind power prediction, without topography information and complicated physical formulas.
2.	Wind Power Prediction Based on PSO-SVR and Grey Combination Model *Yi Zhang, Hexu Sun, Yingjun Guo*	PSO-SVR Fitting Algorithm, Grey System Prediction Model, Neural Network Combination Model (Combination of models)	A single model can not comprehensively indicate inherent law of the sequence but,The combination model can well solve this problem.	
3.	Wind Power Prediction Using Ensemble Learning-Based Models *Junho Lee, Wu Wang, Fouzi Harrou and Ying Sun*	Ensemble learning methods namely XGB, RF, and GRF. (Boosted Trees, Random Forest, and Generalized Random Forest).	The ensemble models considering lagged data achieve better prediction performance of wind power.	Spatio-temporal dependence is not considered.

4.	Two-Step Wind Power Prediction Approach With Improved Complementary Ensemble Empirical Mode Decomposition and Reinforcement Learning *Huifeng Zhang, Dong Yue, Chunxia Dou, Kang Li and Gerhard P. Hancke.*	Long time scale prediction with the CEEMDSPKF approach. Short time scale correction with a deep reinforcement learning approach.	The CEEMDSPKF approach can better predict wind power generation in comparison to other improved approaches.	
5.	Wind power forecasting & prediction methods. *Aoife M. Foley, Belfast* *Paul Leahy, Eamon Mckeogh.*	Numerical weather prediction, Ensemble forecasting	NWP model accuracy improves and as easier to use forecasting techniques are developed.	
6.	Forecasting of Wind Turbine Output Power Using Machine learning *Haroon Rashid, Waqar Haider, Canras Batunlu*	The data obtain from SCADA is used in a simple machine learning model	Real time data is used to train gives better accuracy when predicting for real time data	
7.	Deep Learning-Based Prediction of Wind Power for Multi-turbines in a Wind Farm *Xiaojiao Chen1 , Xiuqing Zhang1 , Mi Dong2 , Liansheng Huang1, Yan*	Long Short-Term Memory Network (LSTM) and Convolutional Neural Network (CNN).	LSTM can effectively extract the data temporal dependence, has excellent performance in prediction on a variety of time scales, and can be trained by	Deep learning model takes too much time to train

	Guo2 and Shiying He1		back-propagated through time algorithm	
8.	Using machine learning to predict wind turbine power output *A Clifton, L Kilcher, J K Lundquist and P Fleming*	The data were used to generate a regression-tree model of the wind turbine's power generation	Predictions of power output using the regression tree model are approximately three times more accurate than power predictions using the power curve.	
9.	Short-Term Wind Energy Forecasting with Independent daytime/ Nighttime machine Learning Models *Rami Al-Hajj,Mohamad M. Fouad,Ali ASSI,Emad Mabrouk*	SVR,DTR for daytime, K-NN models for Regression, and MP evolutionary method	The independent models (Daytime and Nighttime models) overperformed the holistic model in most of the evaluation metrics and showed good performance in short term prediction.	
10.	Wind power forecasting with deep learning networks:Time-series Forecasting. *Wen-Hui Lin,Ping Wang,Zong-Yu Yang*	DLN-based prediction models: power forecasting,Temporal Convolutional Networks,LSTM, RNN,	In this paper effectively solves the long-distance dependency problem.	LSTM and GRU models these model less accuracy compared to TCN model.
11.	Short-Term Prediction of Wind Farm Power: A Data Mining Approach *Andrew Kusiak, Member, IEEE, Haiyang Zheng,*	KNN Model for Wind Power Prediction	There are four time series models for the prediction models accurately predict the wind speed and more importantly the	The time series model uses its own previously predicted values As the number of prediction steps increases, the errors get accumulated.

	and Zhe		wind farm power at different time scales.	
12.	Wind Power Prediction Based on Variational Mode Decomposition and Feature Selection *Gang Zhang, Benben Xu, Hongchi Liu, Jinwang Hou, and Jiangbin Zhang*	Decomposition using VMD; feature selection using mRMR; multi-frequency prediction; integration by using Back Propagation Neural Networks.	this paper uses VMD to decompose wind power, aiming to make better use of the multi-frequency of wind power and improve the prediction accuracy	workload is relatively large although this will greatly improve the prediction accuracy
13.	Wind Energy Prediction Using Machine Learning *Adrian-Nicolae Buturache, Stelian Stancu*	Cross-Industry Standard Process for Data Mining (CRISP-DM), support vector regression (SVR), regression tree (RT), random forest (RF), and artificial neural networks (ANNs)	Well-tuned ANNs can deliver accurate predictions for forecasting wind energy production	
14.	Efficient Wind Power Prediction Using Machine Learning Methods: A Comparative Study *Abdulelah Alkesaiberi, Fouzi Harrou, and Ying Sun*	Gaussian process regression (GPR) and support vector regression (SVR) with different kernels, ensemble learning (EL) models (i.e., Boosted trees, bagged trees, random forest, and XGBoost), and the optimized GPR and EL models are investigated to predict wind power.	Ensemble models (BT, BS, RF, and XGBoost) and GPRO achieve superior performance compared to the other models.	
15.	Wind power prediction based on EEMD-Tent-	ensemble empirical model algorithm, comparing LS-	Improved Sparrow Search Algorithm-Least	The same model has different prediction

	SSA-LS-SVM *Li Zheng a, Luo Xiaorui a, Liu Mengjie a, Cao Xin b, Du Shenhui a, Sun Hexu*	SVM, SA-LS-SVM and Tent-SSA-LS-SVM models, the EEMD-ISSA-LS-SV models	Squares Support Vector Machine (ISSA-LS-SVM) prediction model based on chaotic sequences is proposed to improve the convergence accuracy and shorten the prediction time of the prediction model.	results for different wind turbines. For the three models in the paper, the accuracy of the same model decreases as the installed capacity increases.

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