Multi-horizon Scalable Wind Power Forecast System

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Abstract

Wind power is the Non-Conventional Renewable Energy that has become more relevant in recent years. Given the stochastic behavior of wind speed it is necessary to have efficient prediction models at different horizons. Several kind of models have been used to forecast wind power, but using the same kind of model to forecast at different horizons is not recommendable, therefore a multi-model system needs to be implemented. We propose an scalable wind power forecasting system for multiple horizons using open source software, focusing on the forecast model selection, validated with Chilean wind farms data. Showing that RNN models can make significantly better forecasts than traditional models and can scale easily.

Keywords: *Wind power forecast, Distributed system, Recurrent neural network, Long-short term memory, Echo state network, ARIMA*

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