

Introduction

Goal Predict wind power from limited features

Data Normalized between 0 and 1. Only points with positive wind speed used.

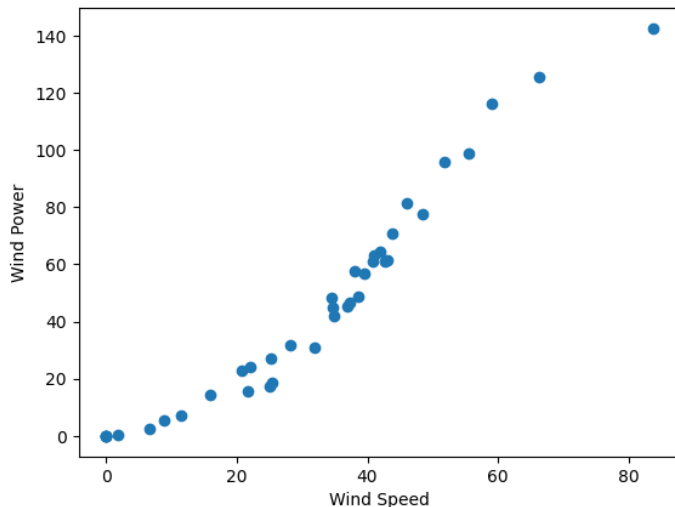
5 features

- Wind speed, wind direction, time, day, month

1 target

- Active power

Wind Speed vs Wind Power



Results

Logistic Regression

Wind speed

Predict label

- High/Low

$$P(\text{True High} \mid \text{Predicted High}) = 0.9764$$

$$P(\text{Predicted High} \mid \text{True High}) = 0.9904$$

Accuracy

- 0.9831

Daily cumulative wind speed

Predict label

- High/Low

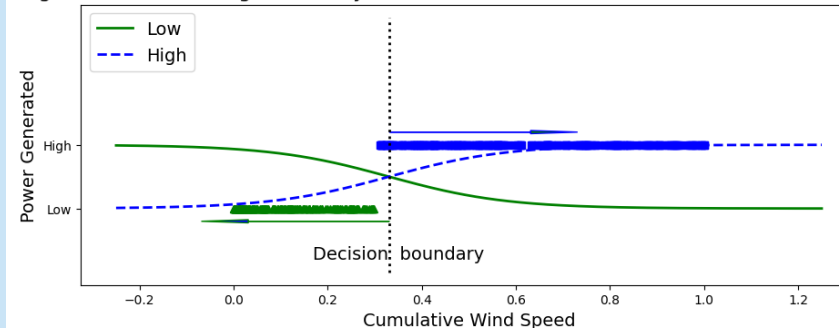
$$P(\text{True High} \mid \text{Predicted High}) = 1.000$$

$$P(\text{Predicted High} \mid \text{True High}) = 0.9422$$

Accuracy

- 0.9713

Logistic Curve Showing Probability of Power Generated Based on Cumulative Wind Speed



Conclusions

Wind speed predictions are not conservative enough.

Cumulative wind speed predictions could reduce risk of not having enough power.

- 351 data points
- Need more data.

Future models should predict label for next day.