

# Exploring Tools for Interpretable Machine Learning

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PyData Global 2021

# Outline

Introduction

Data Set

Models Fit

Model Explainability

- Model Specific

  - Beta Coefficients and Weight Effects

  - Tree ensembles

- Model Agnostic

  - PDP and ICE Plots

  - Permutation Importance

  - SHAP

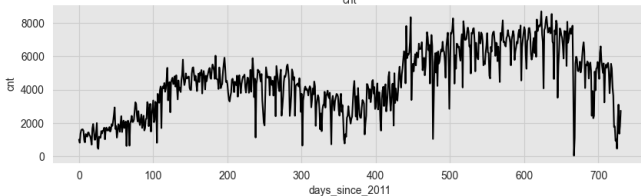
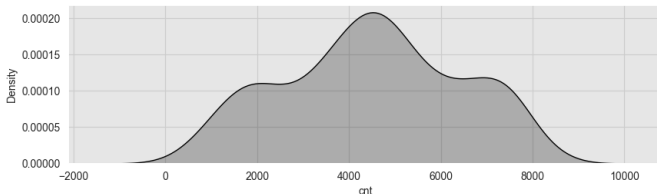
References

[1]

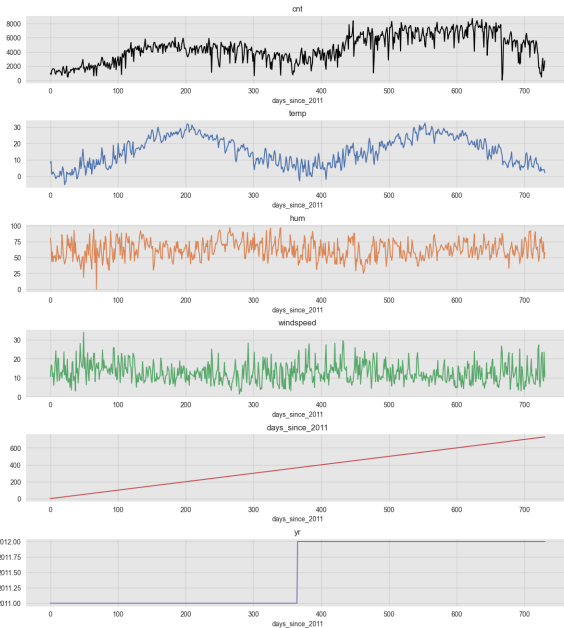
# Target Variable - cnt: Daily Bike Rents

	season	yr	mnth	holiday	weekday	workingday	weathersit	temp	hum	windspeed	cnt	days_since_2011
0	SPRING	2011	JAN	NO HOLIDAY	SAT	NO WORKING DAY	MISTY	8.175849	80.5833	10.749882	985	0
1	SPRING	2011	JAN	NO HOLIDAY	SUN	NO WORKING DAY	MISTY	9.083466	69.6087	16.652113	801	1
2	SPRING	2011	JAN	NO HOLIDAY	MON	WORKING DAY	GOOD	1.229108	43.7273	16.636703	1349	2
3	SPRING	2011	JAN	NO HOLIDAY	TUE	WORKING DAY	GOOD	1.400000	59.0435	10.739832	1562	3
4	SPRING	2011	JAN	NO HOLIDAY	WED	WORKING DAY	GOOD	2.666979	43.6957	12.522300	1600	4

cnt: Target Variable

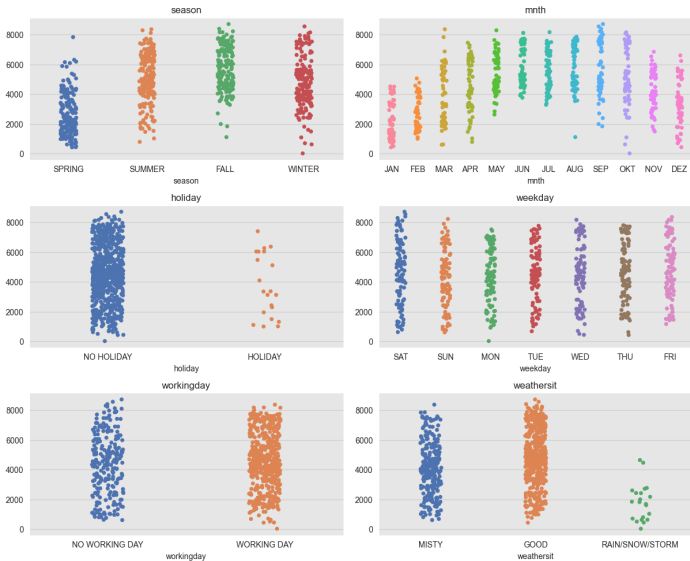


# Continuous Regressors

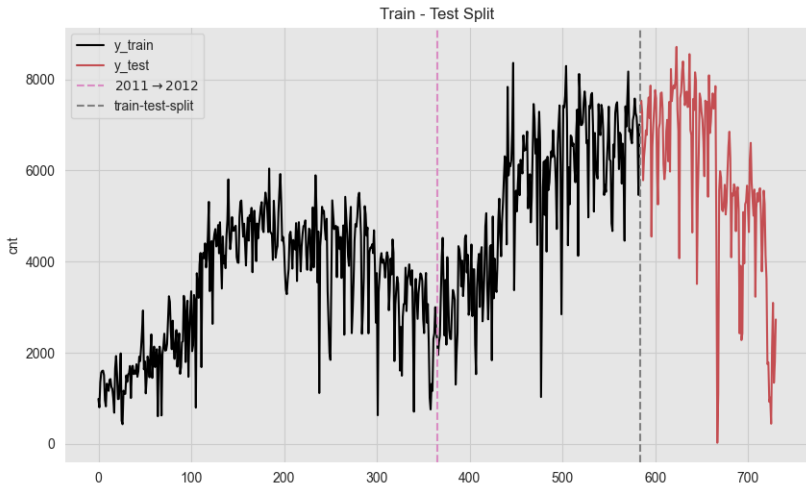


# Categorical Regressors

cnt distribution over categorical\_features



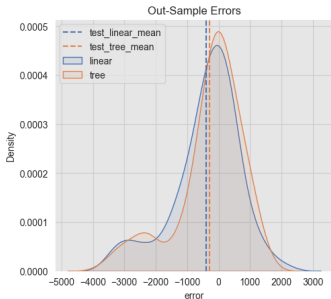
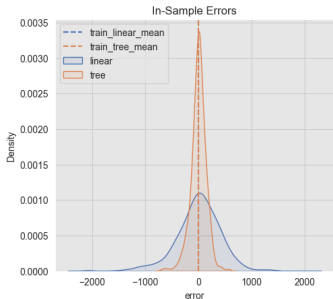
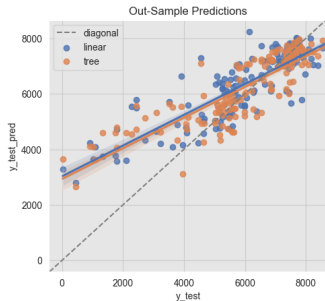
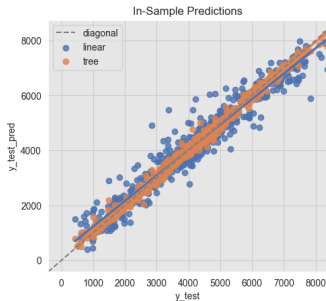
# Train-Test Split



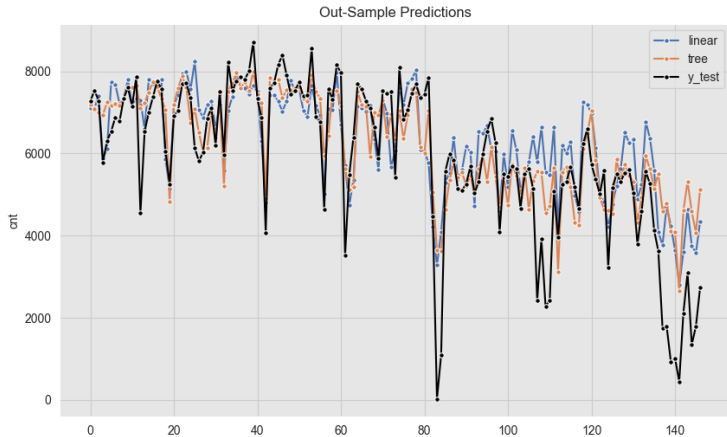
# Models



# Out of sample performance - Errors Distribution



# Out of sample performance - Predictions



# References I

[1] Juan Orduz.

Exploring tools for interpretable machine learning.

[https://juanitorduz.github.io/interpretable\\_ml/](https://juanitorduz.github.io/interpretable_ml/), Jul 2021.

# Thank You!

## Contact

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