

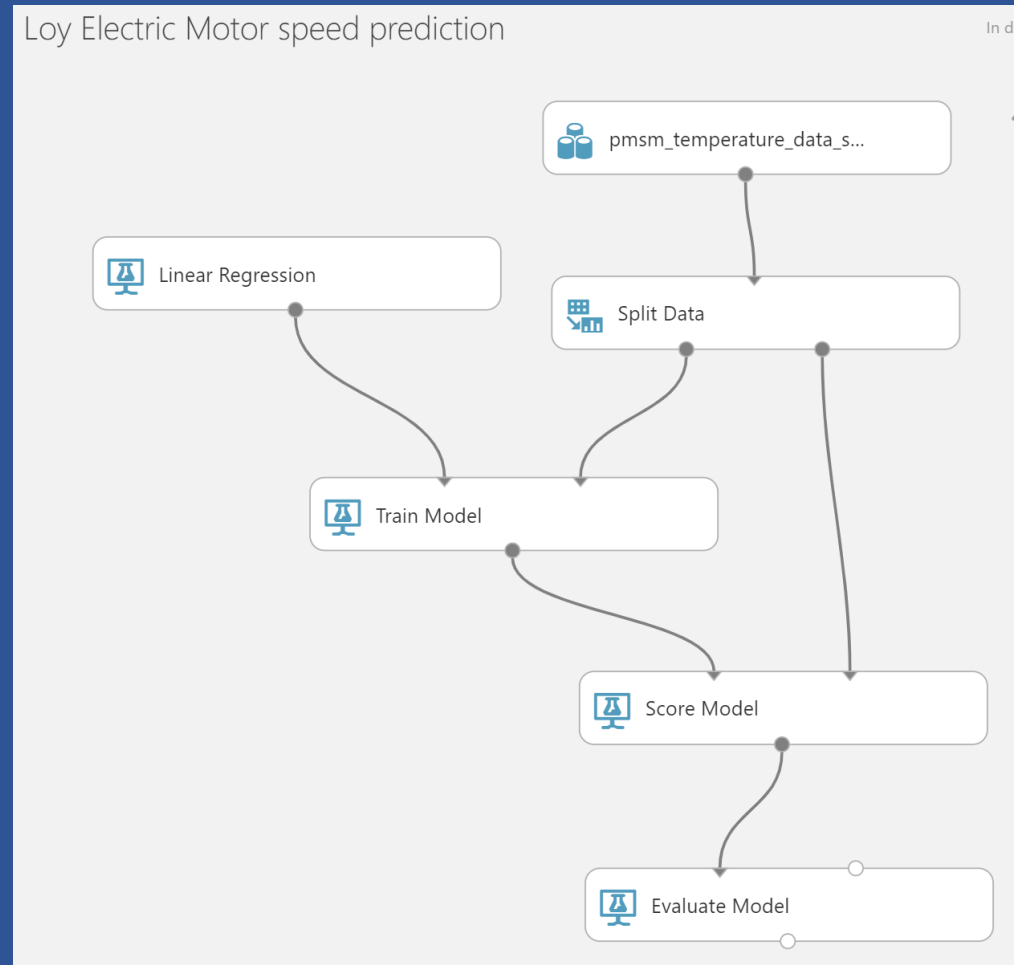
Motor Speed Prediction in Azure ML

In this session

- Question and Data
- Dataset description
- Create Data Set
- Place dataset
- Split Data
- Train, Score, Evaluate
- Metrics and score reading

The finished model

<https://raw.githubusercontent.com/laploy/MIB/master/Files/020-Model-Motor-speed-prediction.JPG>



Question and Data

Question: How fast is the motor rotate?

Dataset:

Train dataset

https://github.com/laploy/MIB/blob/master/Data/pmsm_temperature_data_small.zip

Test dataset

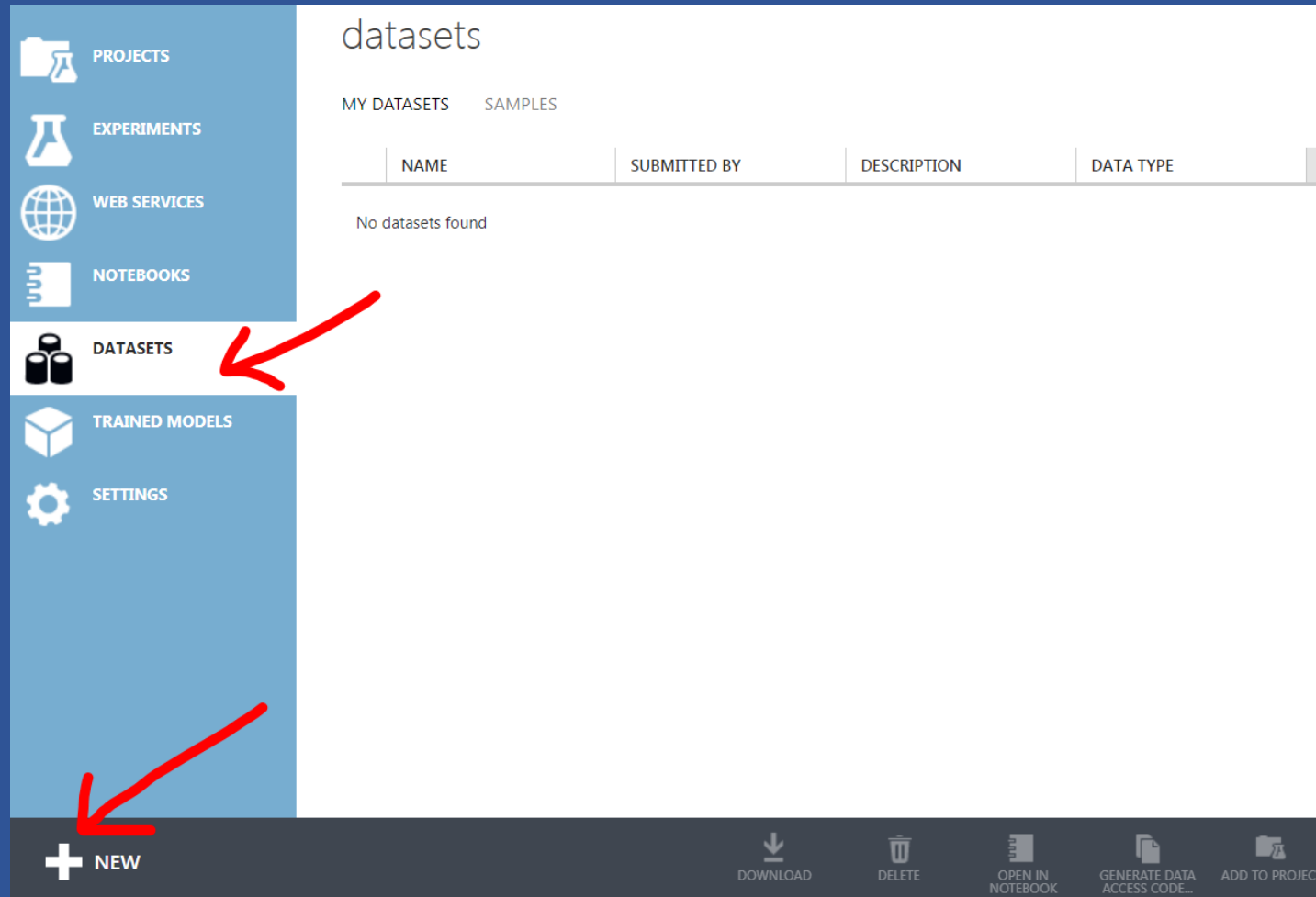
https://raw.githubusercontent.com/laploy/MIB/master/Data/pmsm_temperature_data_test.csv

Dataset description


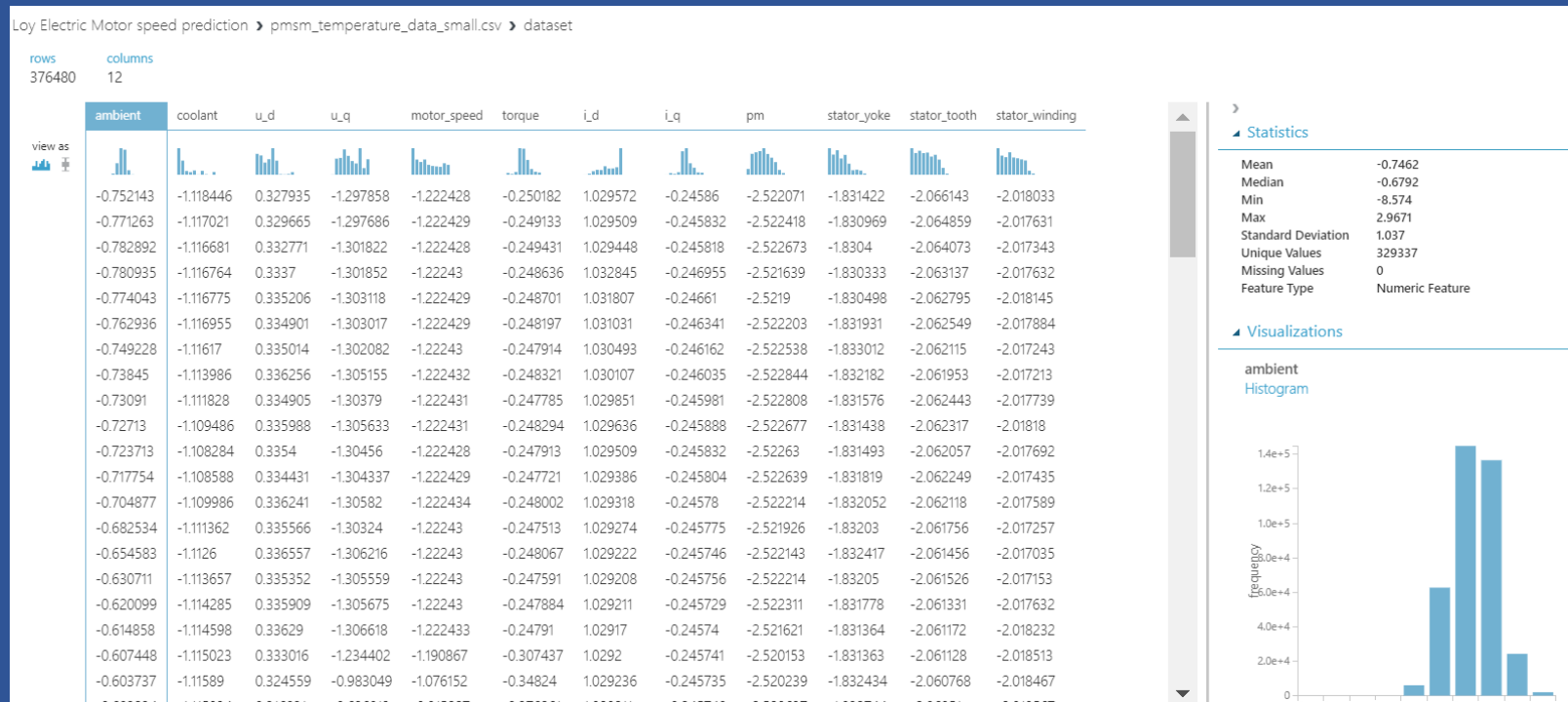
- **ambient:** Ambient temperature as measured by a thermal sensor located closely to the stator.
- **coolant:** Coolant temperature. The motor is water cooled. Measurement is taken at outflow.
- **u_d:** Voltage d-component
- **u_q:** Voltage q-component
- **motor_speed:** Motor speed
- **torque:** Torque induced by current.
- **i_d:** Current d-component
- **i_q:** Current q-component
- **pm:** Permanent Magnet surface temperature representing the rotor temperature. This was measured with an infrared
- **stator_yoke:** Stator yoke temperature measured with a thermal sensor.
- **stator_tooth:** Stator tooth temperature measured with a thermal sensor.
- **stator_winding:** Stator winding temperature measured with a thermal sensor.
- **profile_id:** Each measurement session has a unique ID. Make sure not to try to estimate from one session onto the other as they are

Create Data Set

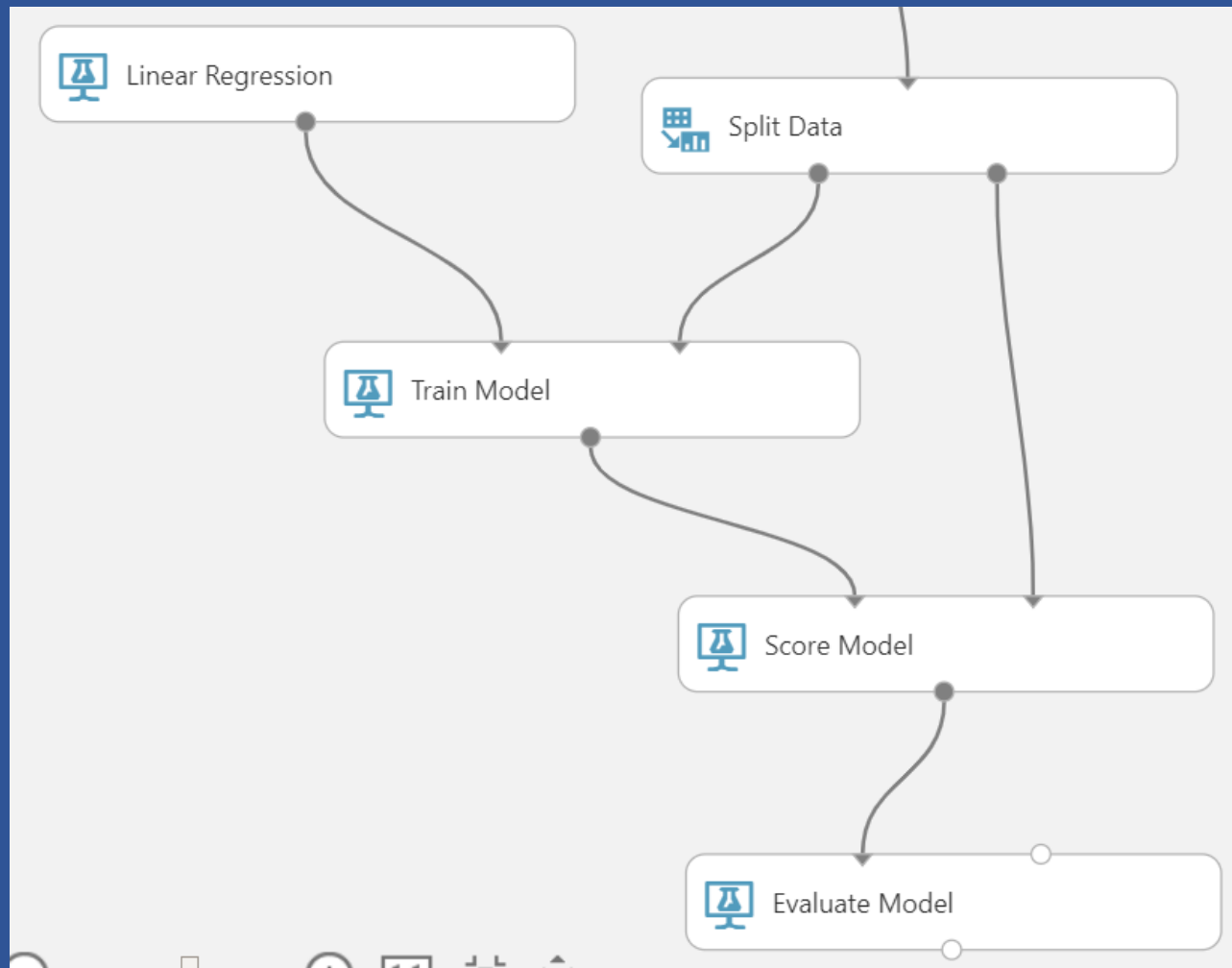
Click DATASET / + NEW / import both datasets



Add Datasets, Visualize

 pmsm_temperature_data_s...


Train, Score and Evaluate

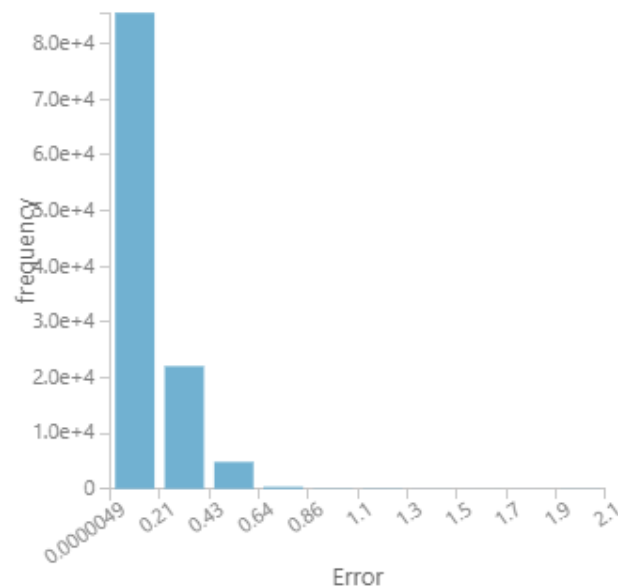


Evaluation Metrics

Metrics

Mean Absolute Error	0.149457
Root Mean Squared Error	0.207648
Relative Absolute Error	0.171958
Relative Squared Error	0.042649
Coefficient of Determination	0.957351

Error Histogram



What's next?

