Effect of COVID-19 on Daily Delivered Power

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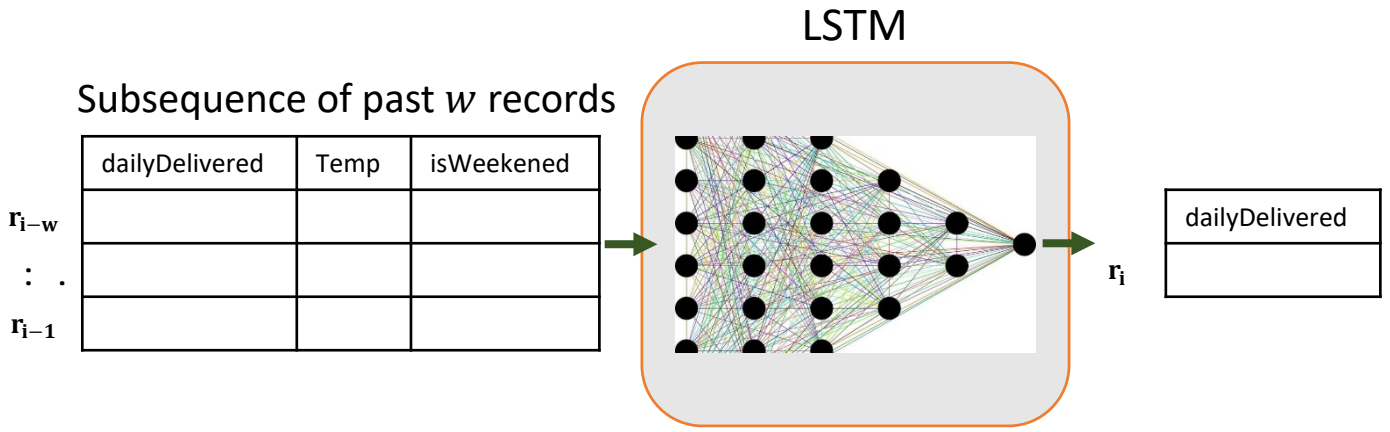
Dataset

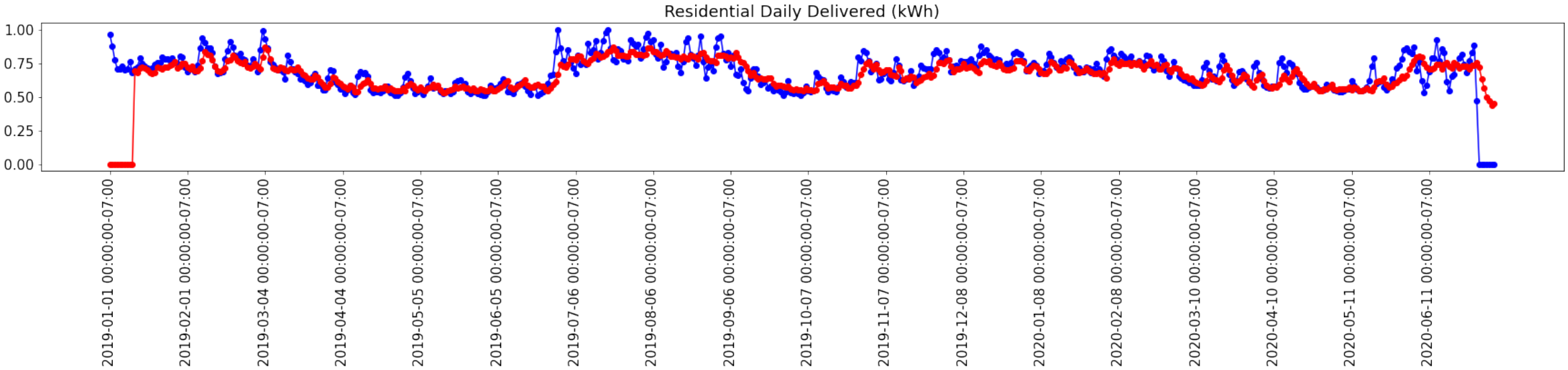
Attribute	Data type	Description
id	Integer	Unique
time	DateTime	Daily dates (from 1/1/19 to 7/7/20)
Temp	Float	Temperature
dailyDelivered	Float	KwH
isWeekened	Boolean	

Model1: Original LSTM



Trained on pre-covid data (76% of data) and tested on all dataset

Model1: Results

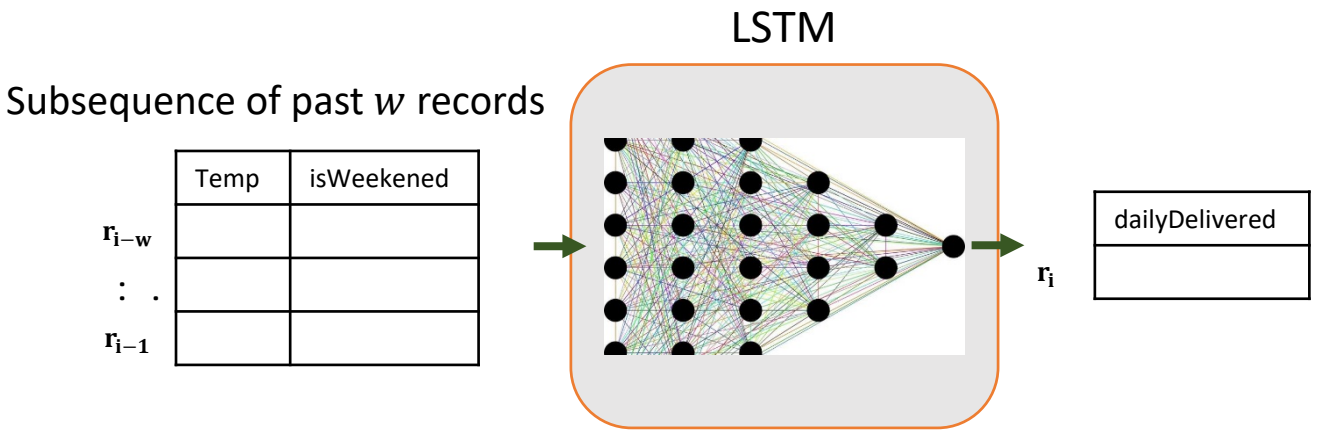


- Prediction error on pre-covid data: [0.02160737]
- Prediction error on post-covid data: [0.03631474]
- Error sign (actual-prediction) for post-covid data: [-0.012163313]

Conclusions:

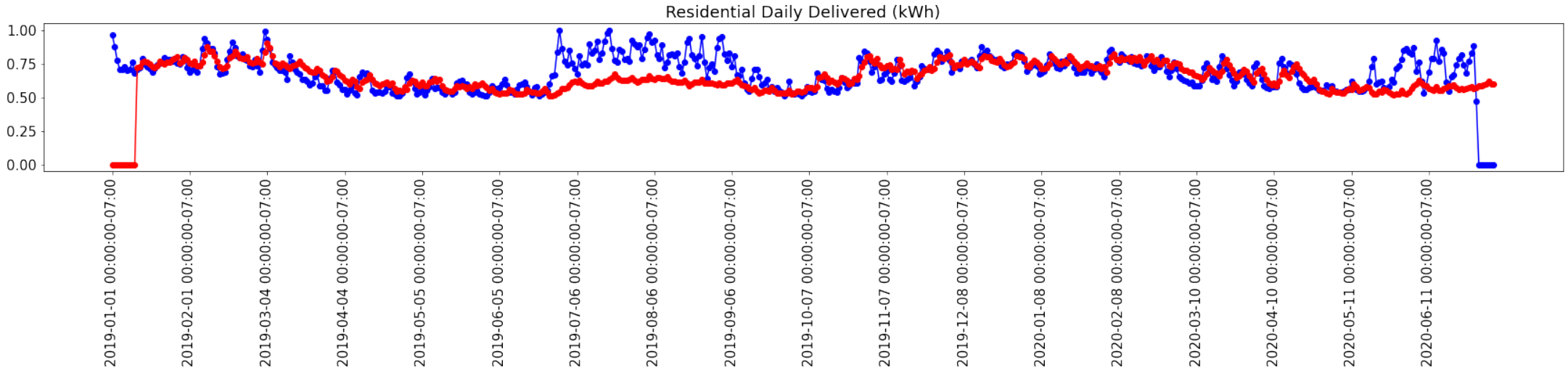
- ➢ This model Uses the immediate past values of "dailyDelivered" in its prediction
- ➢ This model works closely well for both pre-covid and post-covid data

Model2: Original LSTM



Trained on pre-covid data (76% of data) and tested on all dataset

Model2: Results

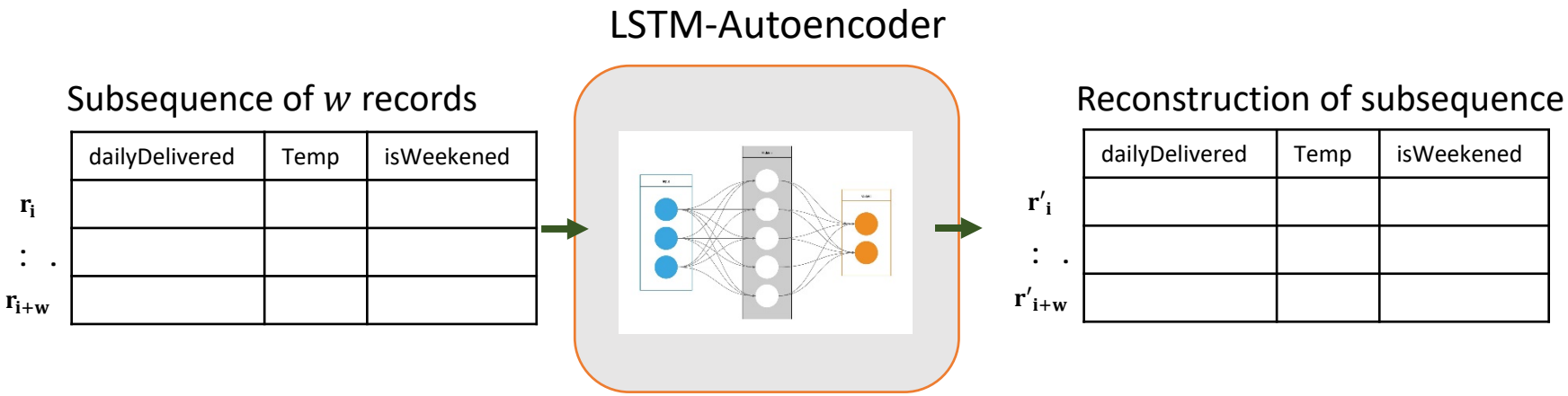


- Prediction error on pre-covid data: [0.02248577]
- Prediction error on post-covid data: [0.035492]
- Error sign (actual-prediction) for post-covid data: [0.008784614]

Conclusions:

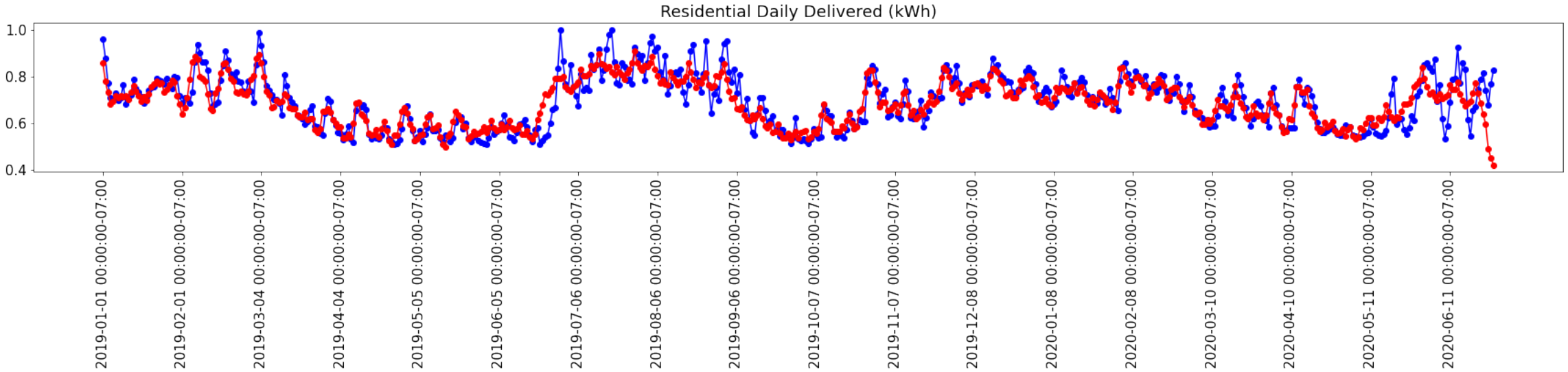
- ➢ This model does not use the past values of "dailyDelivered" in its prediction
- ➢ This model less effective in prediction than the first model
- ➢ Observed value of dailyDelivered for post-covid data is greater than the one for pre-covid data

Model3: LSTM-Autoencoder



Trained on pre-covid data (76% of data) and tested on all dataset

Model3: Results



- Prediction error on pre-covid data: [0.00204264]
- Prediction error on post-covid data: [0.00493585]
- Error sign (actual-prediction) for post-covid data: [-0.0036460795]

Conclusions:

- ➢ This model uses the values of "dailyDelivered" in its reconstruction
- ➢ This model works closely well for both pre-covid and post-covid data

Tasks

- Use a non-temporal prediction method, such as original NN