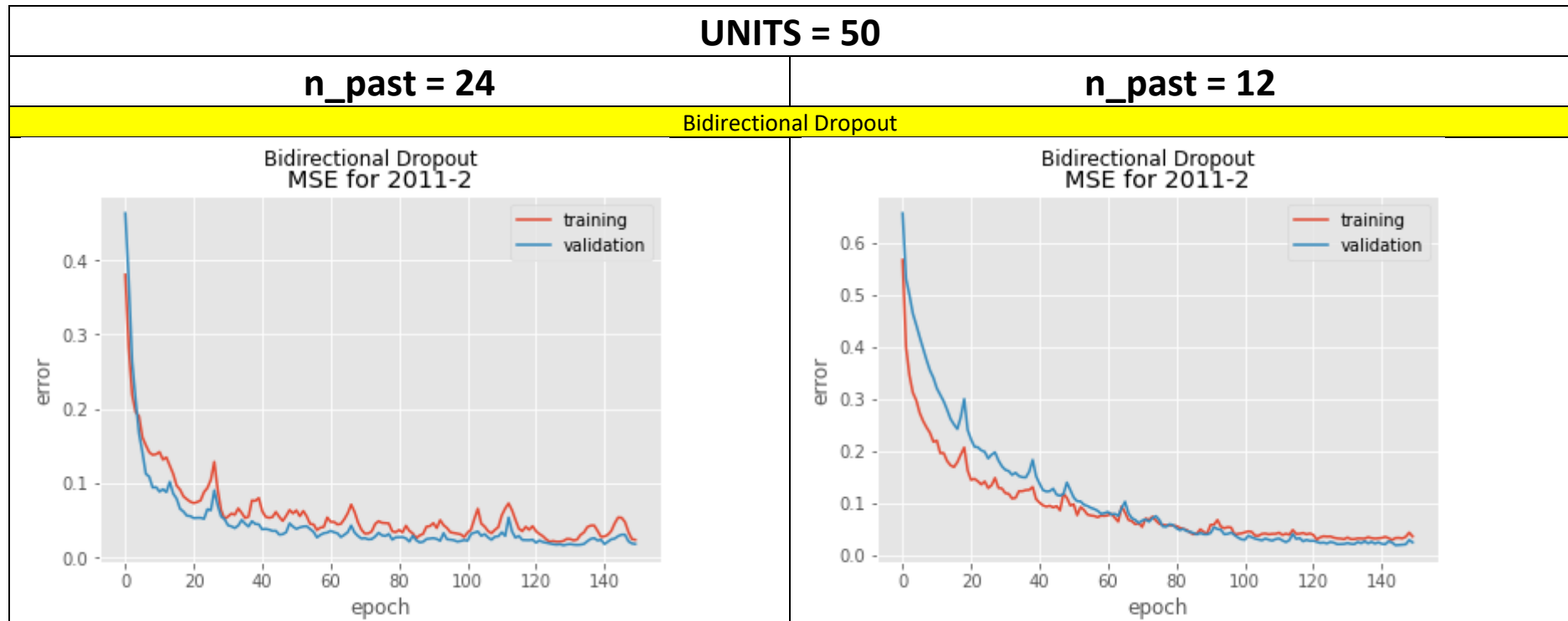
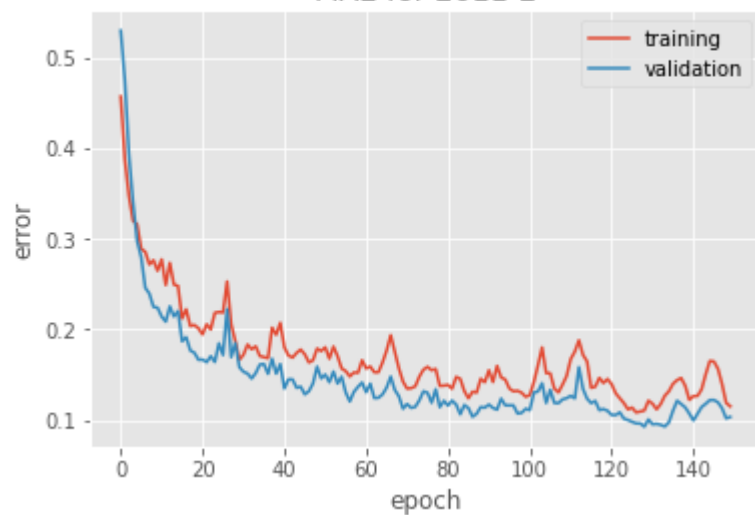


## TRAINING HISTORY – CURVES

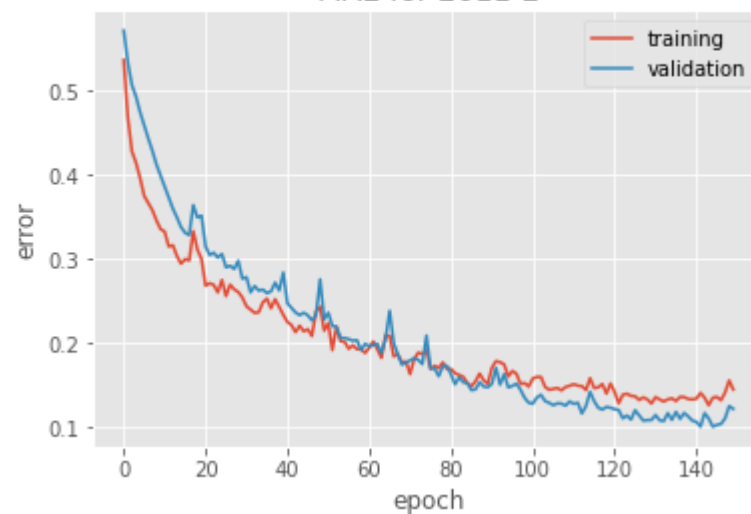
All curves are from models with linear activation function



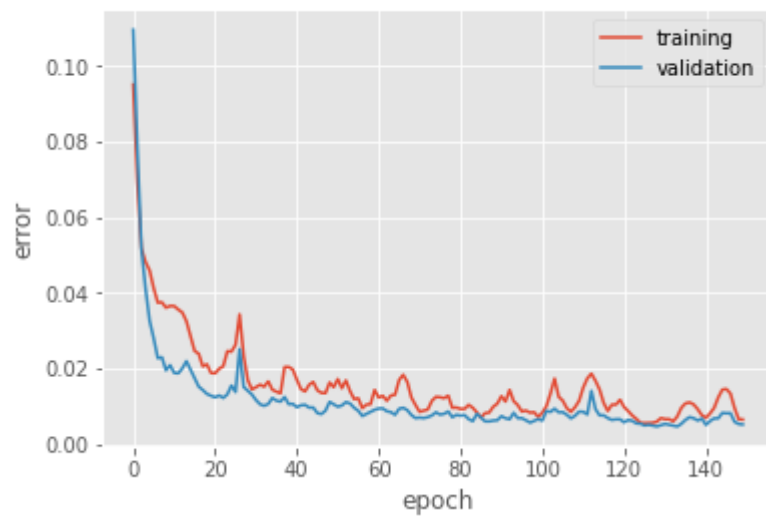
Bidirectional Dropout  
MAE for 2011-2



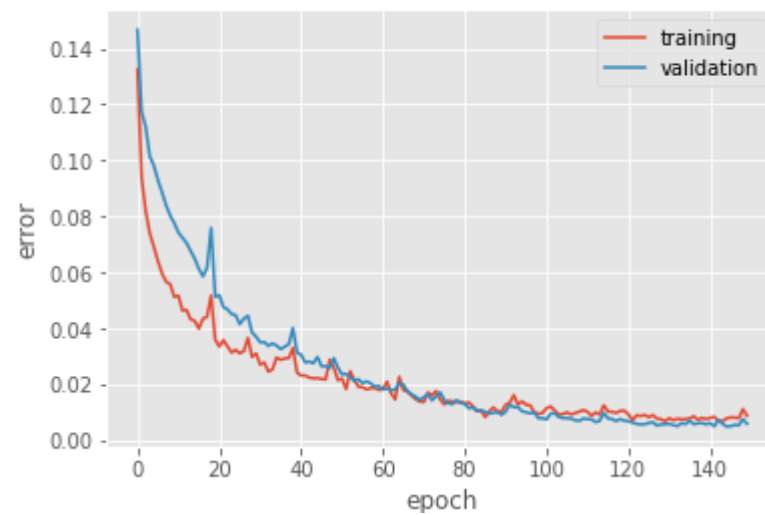
Bidirectional Dropout  
MAE for 2011-2



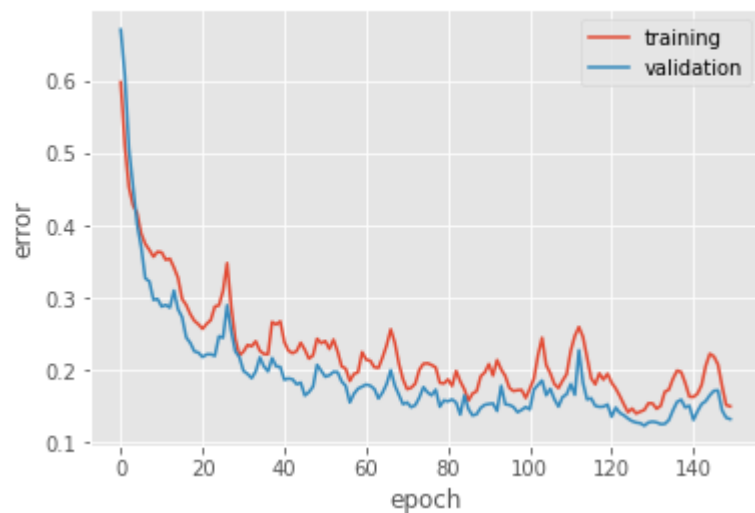
Bidirectional Dropout  
MSLE for 2011-2



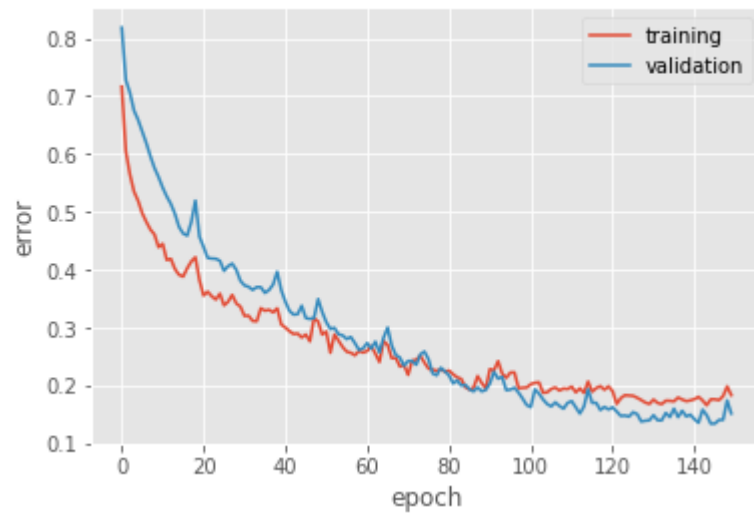
Bidirectional Dropout  
MSLE for 2011-2



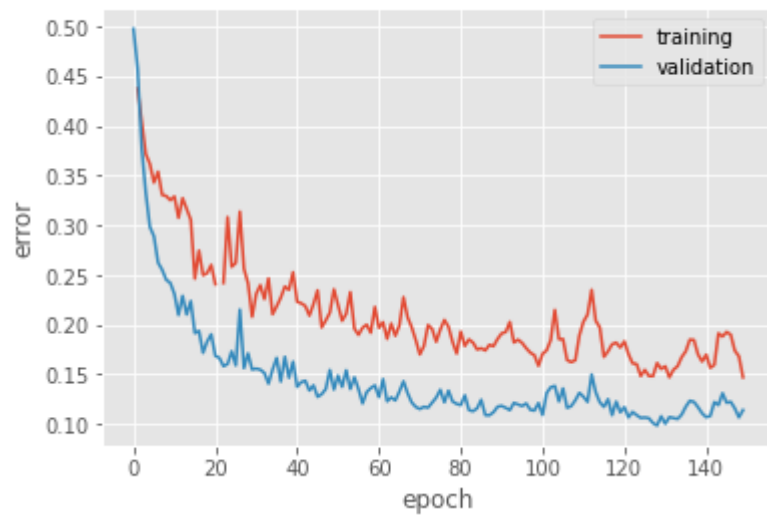
Bidirectional Dropout  
RMSE for 2011-2



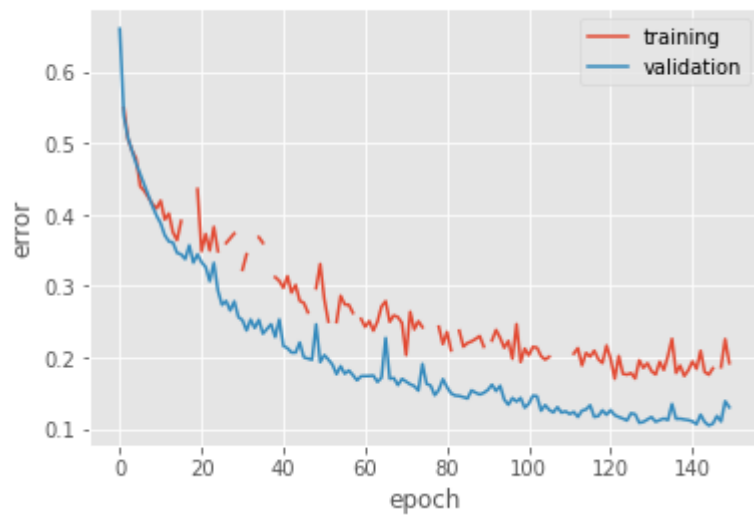
Bidirectional Dropout  
RMSE for 2011-2



Bidirectional Dropout  
RMSLE for 2011-2

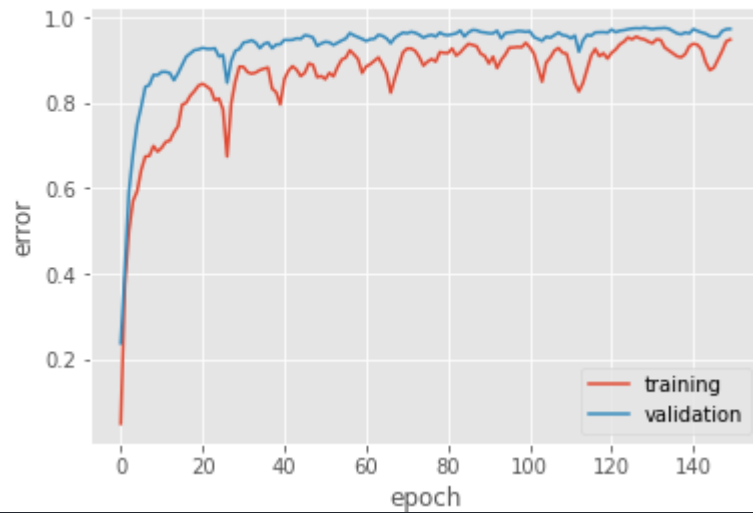


Bidirectional Dropout  
RMSLE for 2011-2

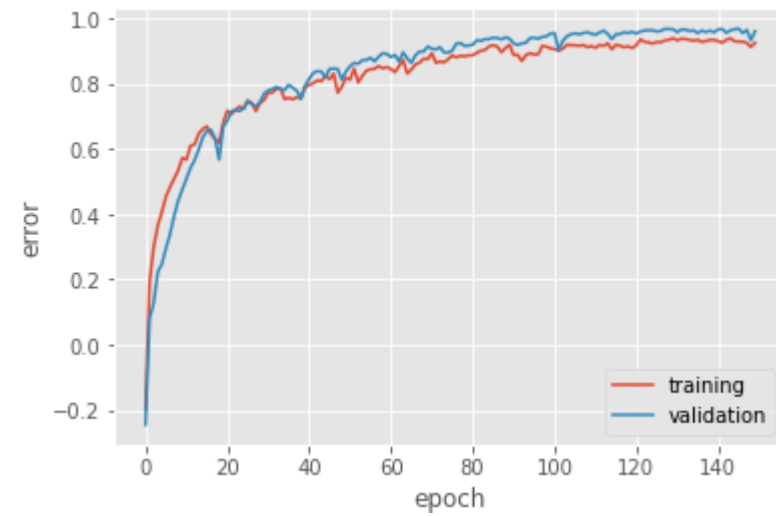


D

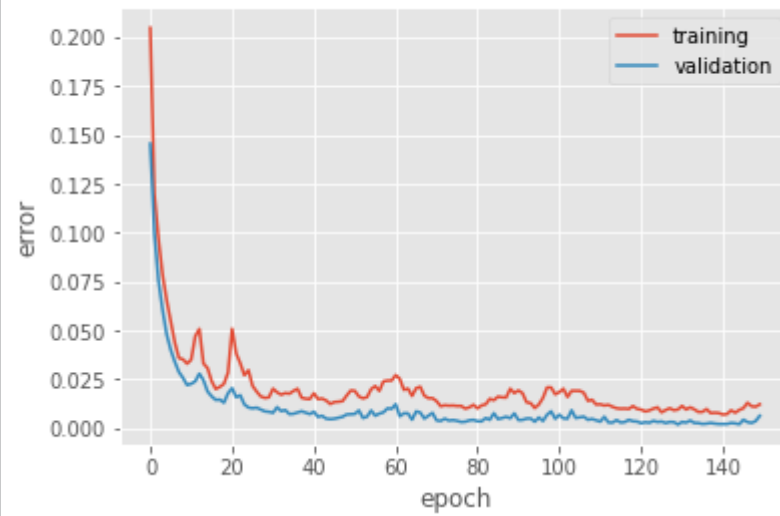
Bidirectional Dropout  
R2 for 2011-2



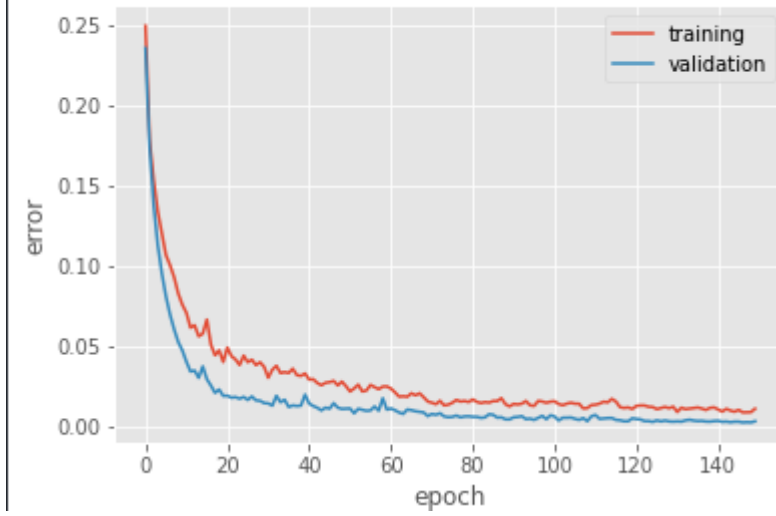
Bidirectional Dropout  
R2 for 2011-2



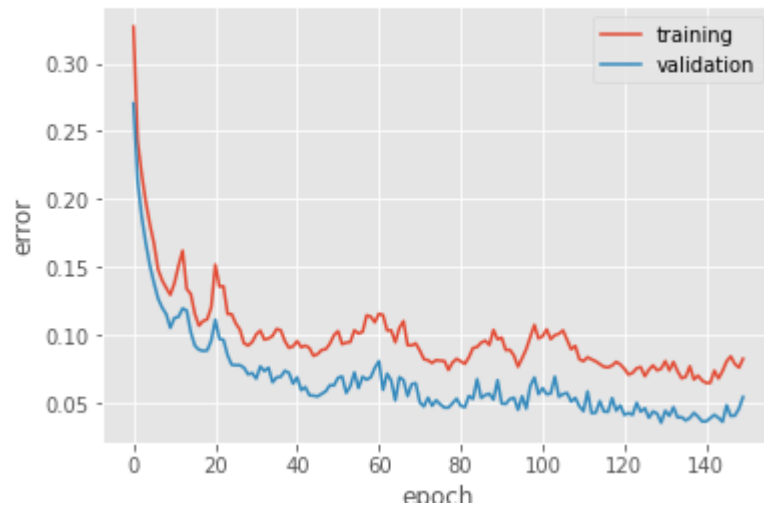
Bidirectional Dropout  
MSE for 2011-8



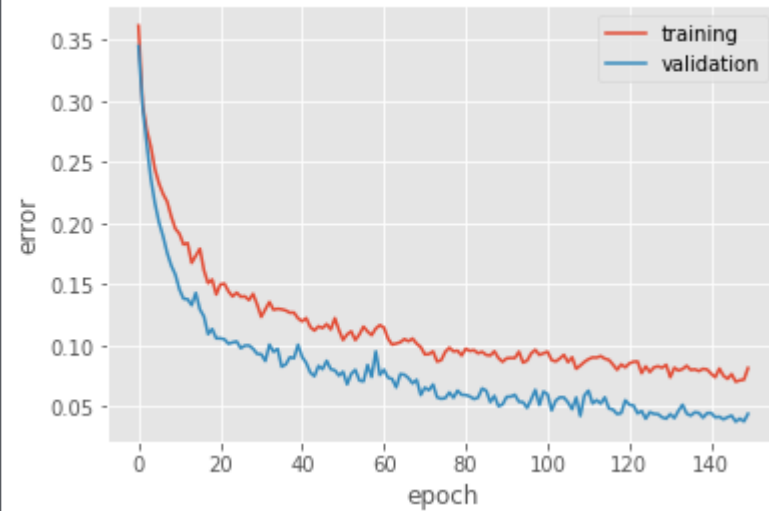
Bidirectional Dropout  
MSE for 2011-8



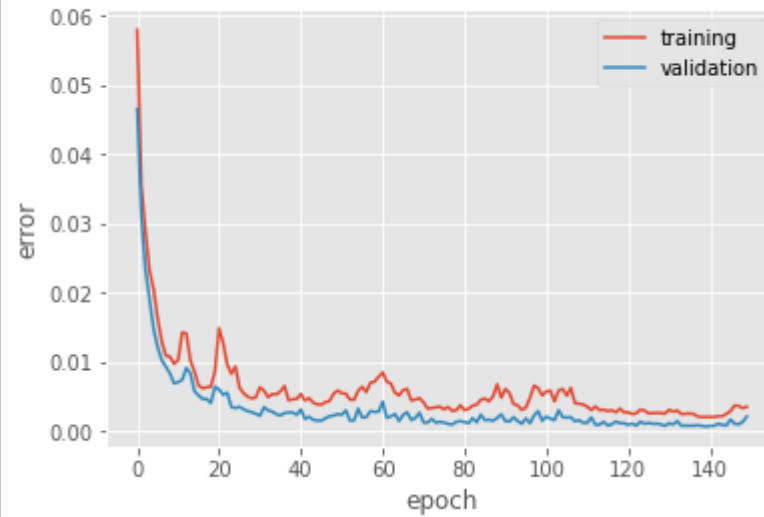
Bidirectional Dropout  
MAE for 2011-8



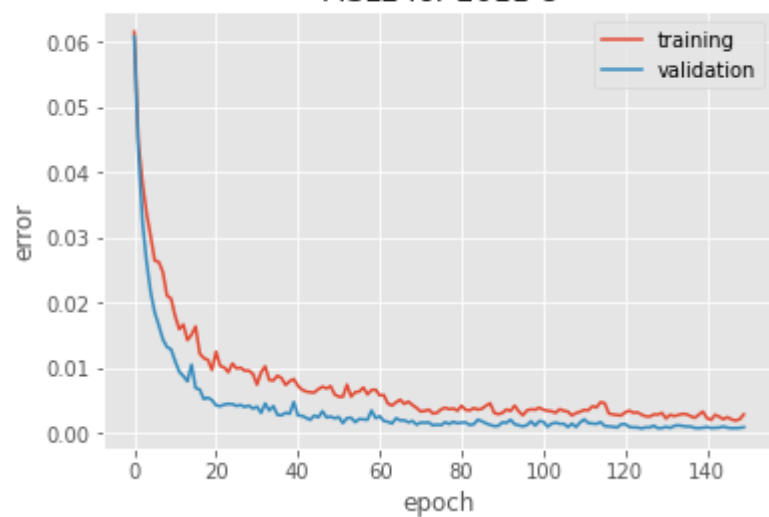
Bidirectional Dropout  
MAE for 2011-8



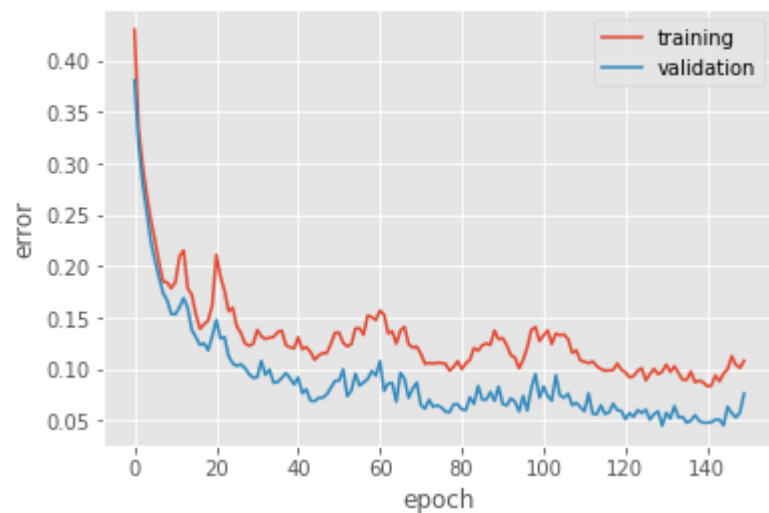
Bidirectional Dropout  
MSLE for 2011-8



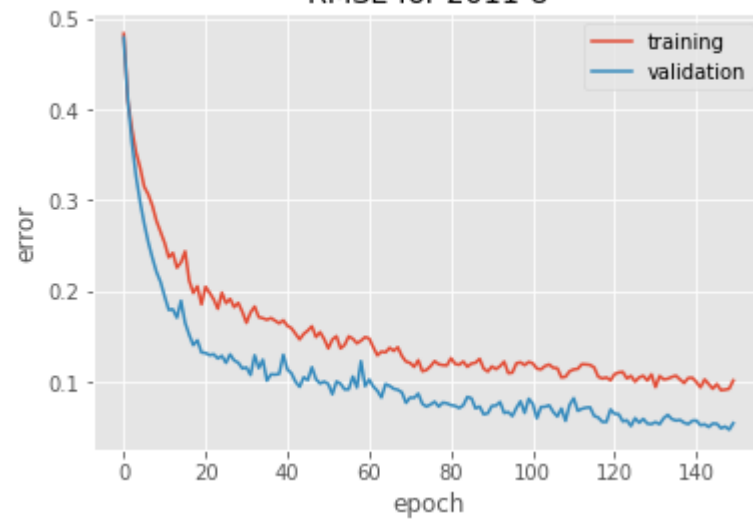
Bidirectional Dropout  
MSLE for 2011-8



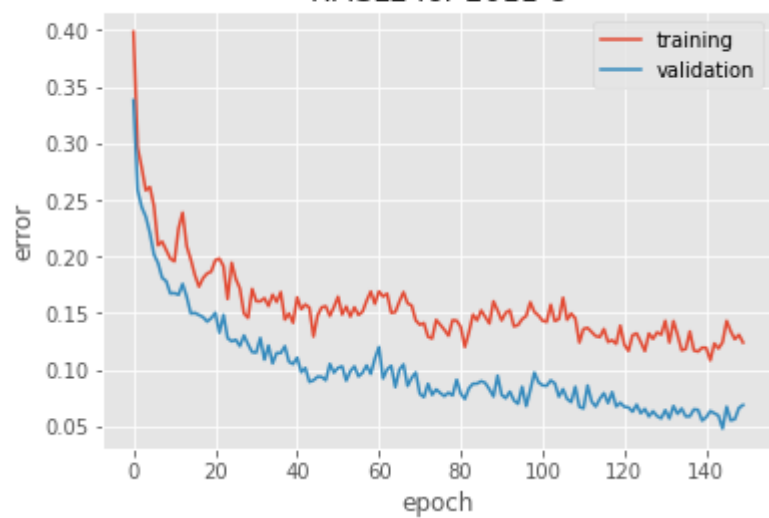
Bidirectional Dropout  
RMSE for 2011-8



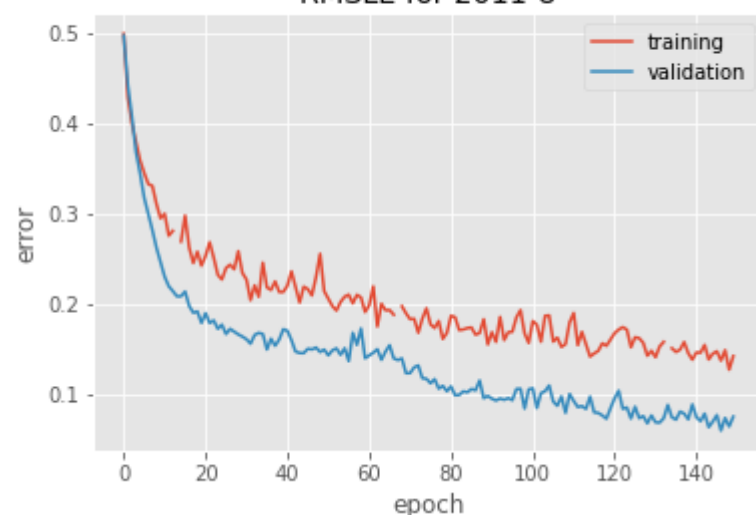
Bidirectional Dropout  
RMSE for 2011-8



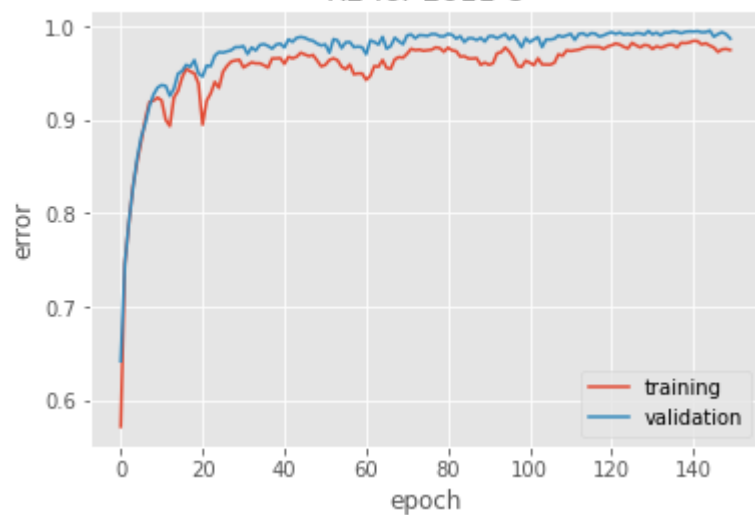
Bidirectional Dropout  
RMSLE for 2011-8



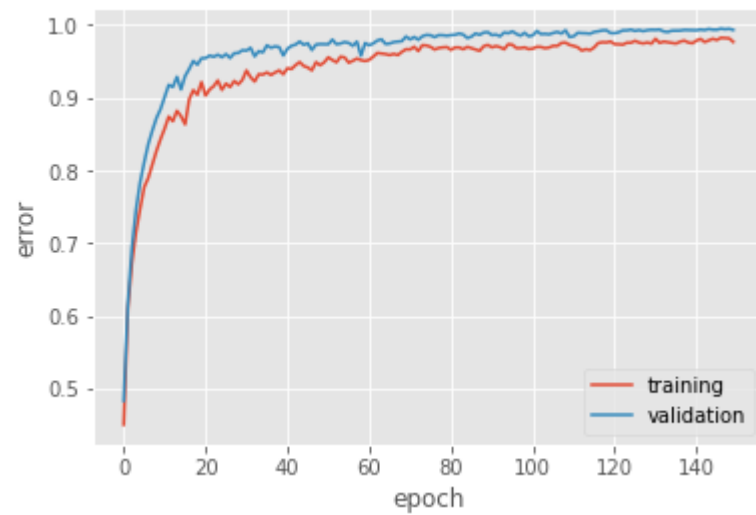
Bidirectional Dropout  
RMSLE for 2011-8



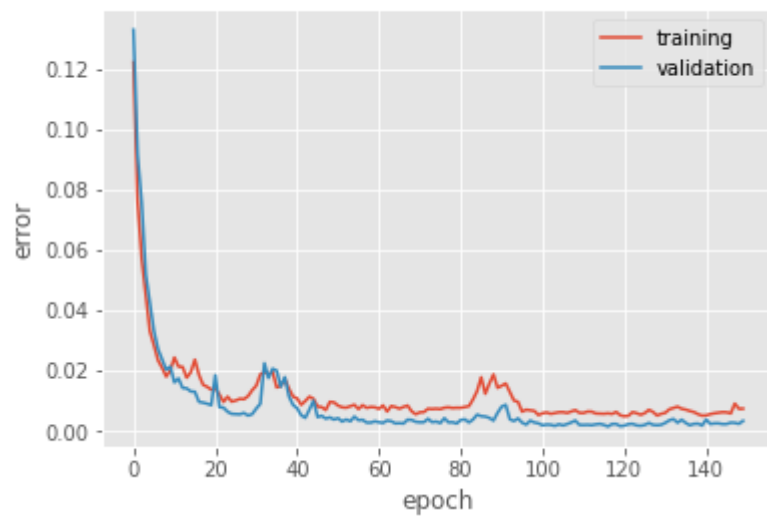
Bidirectional Dropout  
R2 for 2011-8



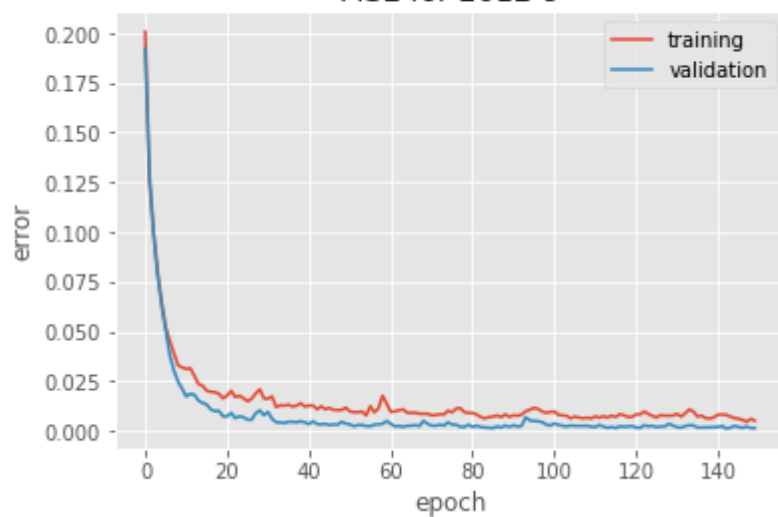
Bidirectional Dropout  
R2 for 2011-8



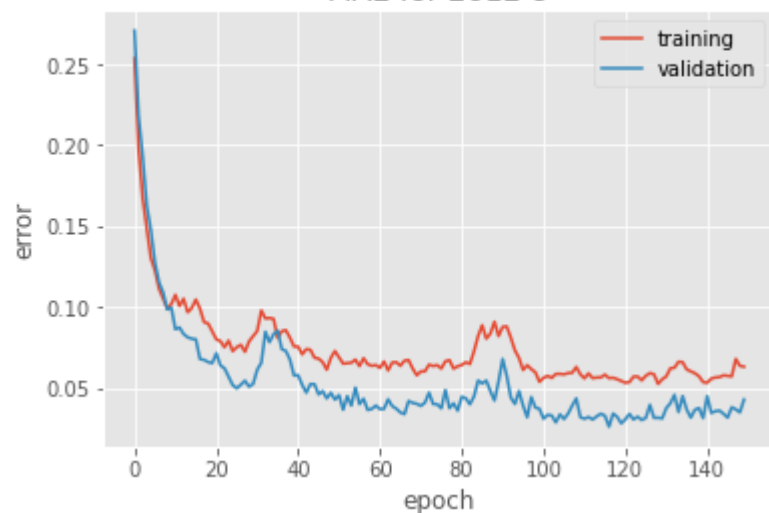
Bidirectional Dropout  
MSE for 2012-9



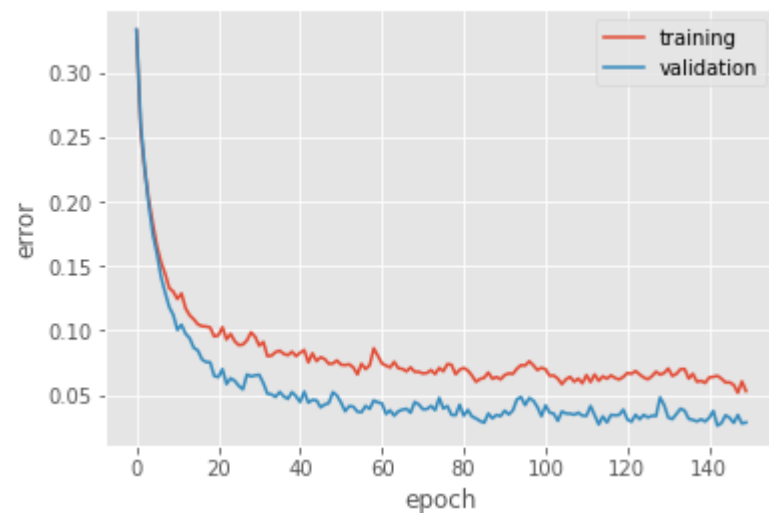
Bidirectional Dropout  
MSE for 2012-9



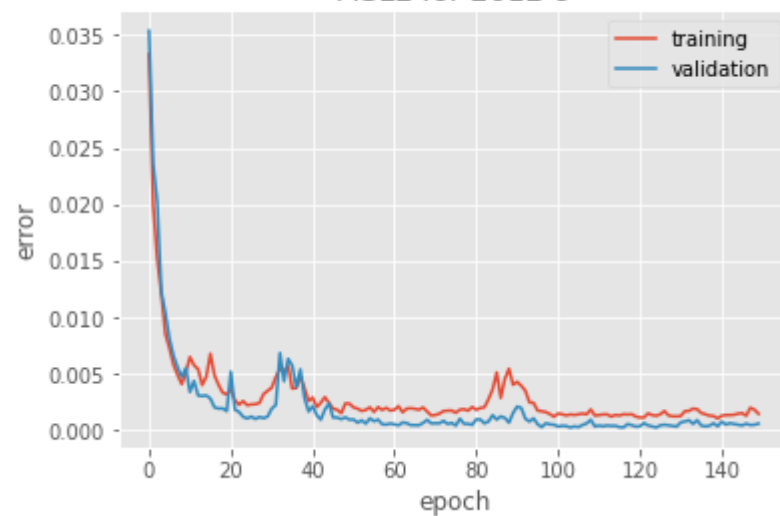
Bidirectional Dropout  
MAE for 2012-9



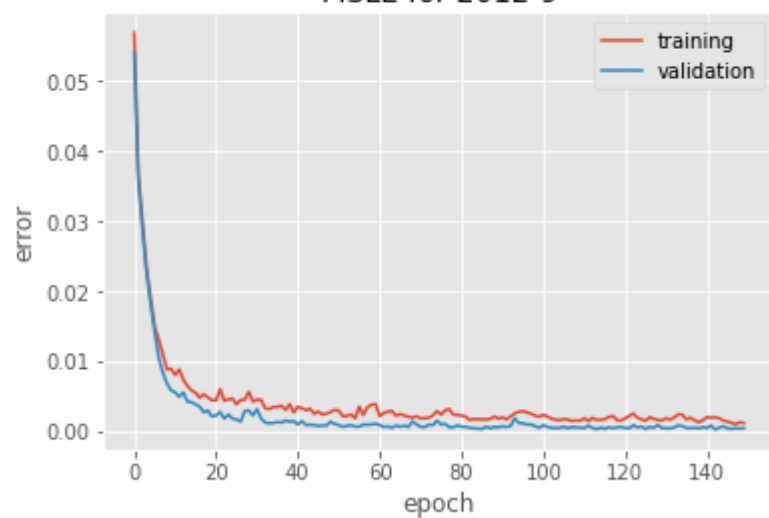
Bidirectional Dropout  
MAE for 2012-9



Bidirectional Dropout  
MSLE for 2012-9

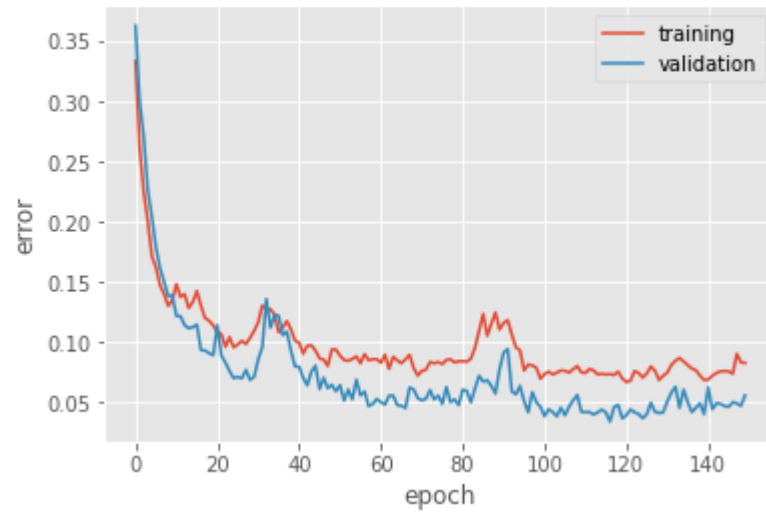


Bidirectional Dropout  
MSLE for 2012-9

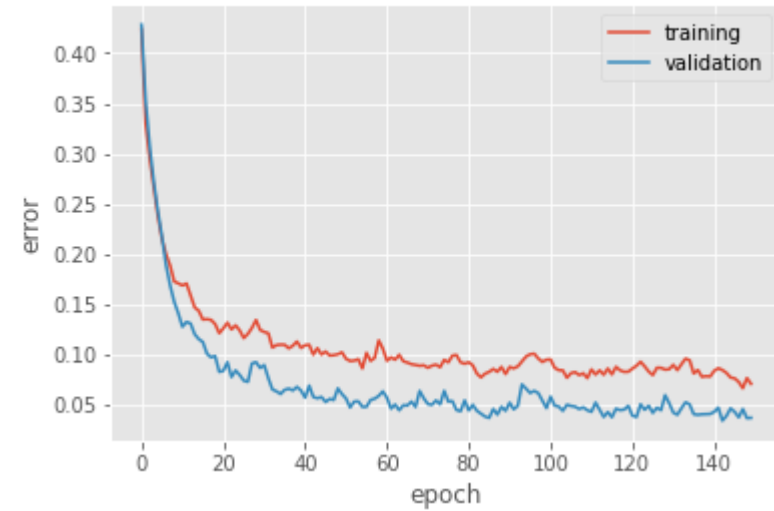




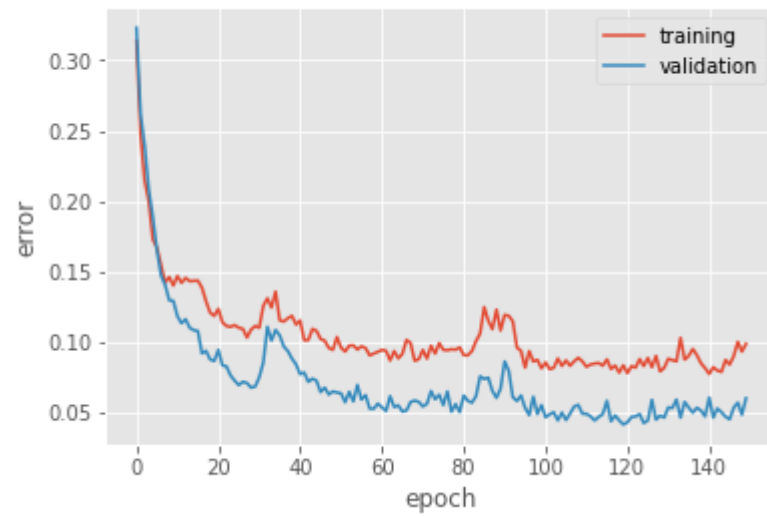
Bidirectional Dropout  
RMSE for 2012-9



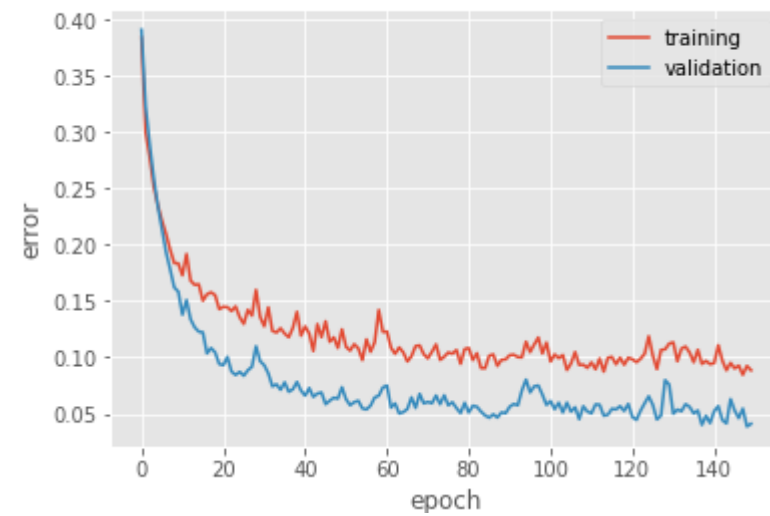
Bidirectional Dropout  
RMSE for 2012-9

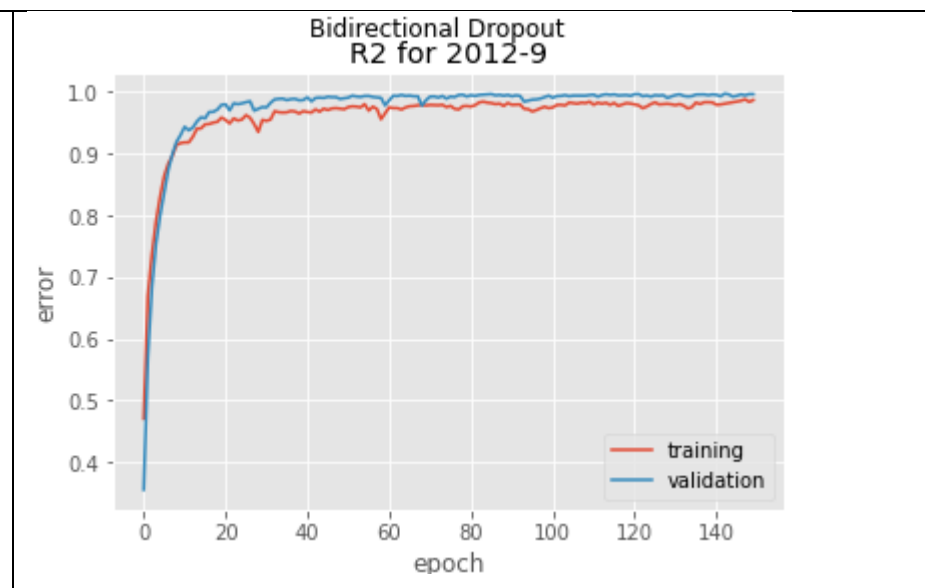
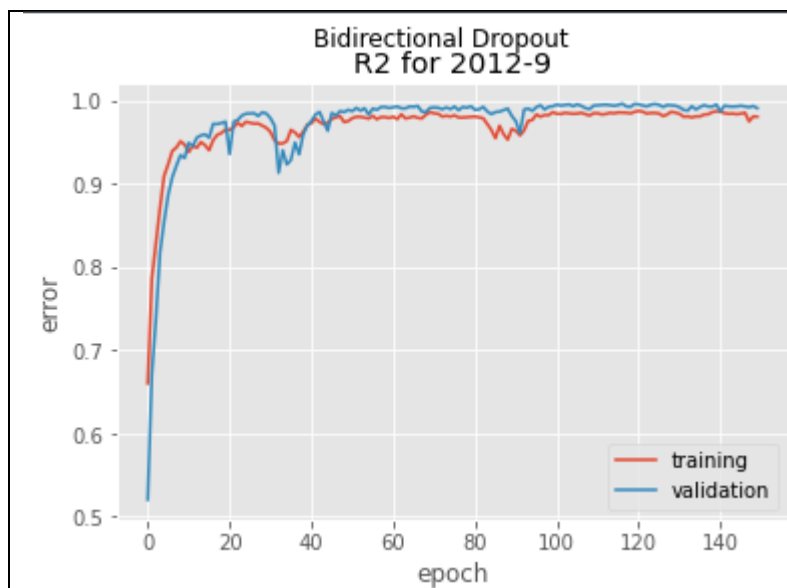


Bidirectional Dropout  
RMSLE for 2012-9

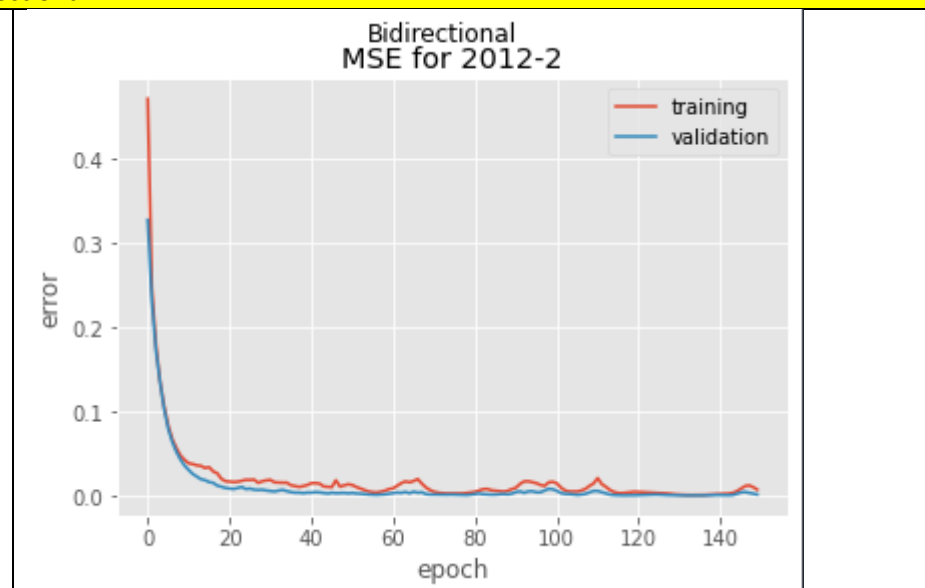
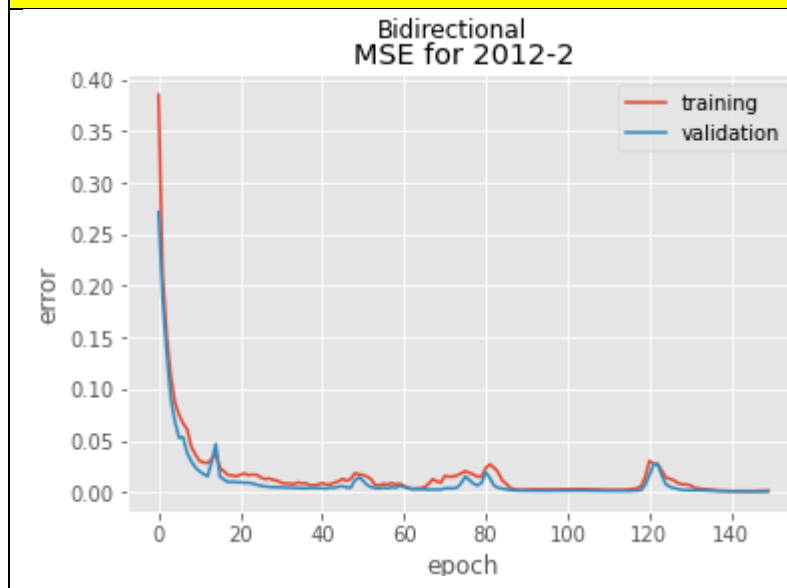


Bidirectional Dropout  
RMSLE for 2012-9

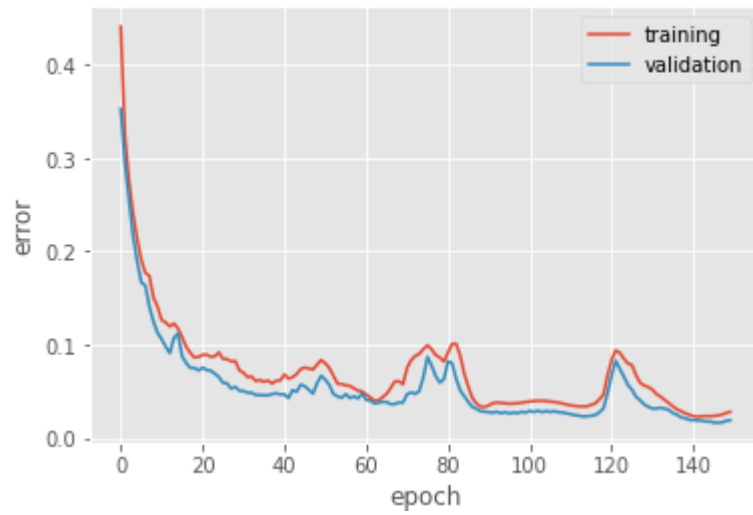




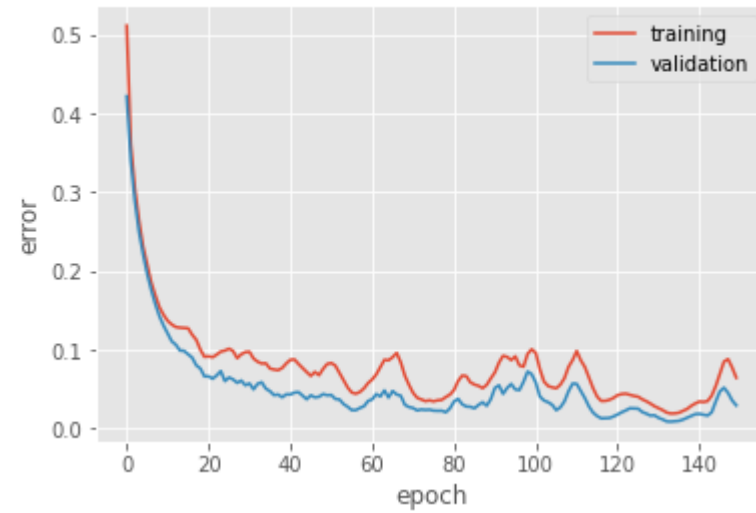
Bidirectional



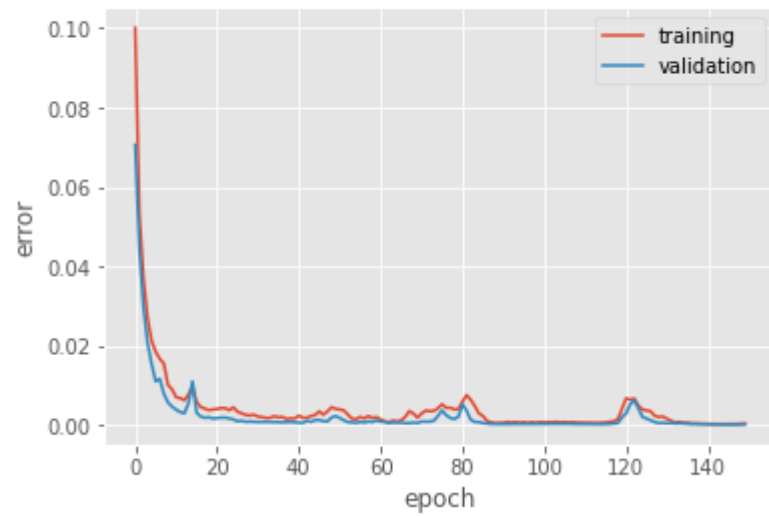
Bidirectional  
MAE for 2012-2



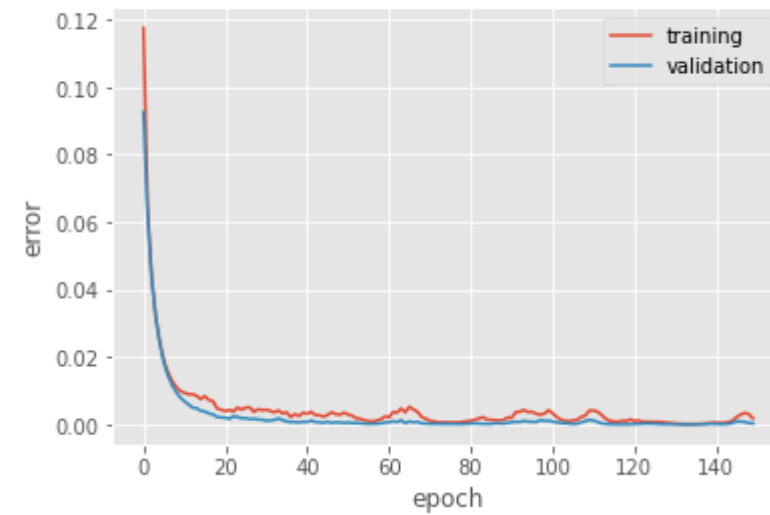
Bidirectional  
MAE for 2012-2



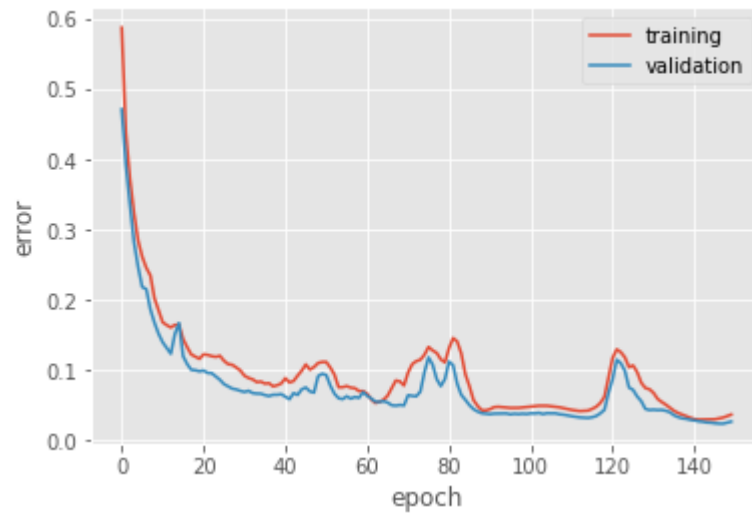
Bidirectional  
MSLE for 2012-2



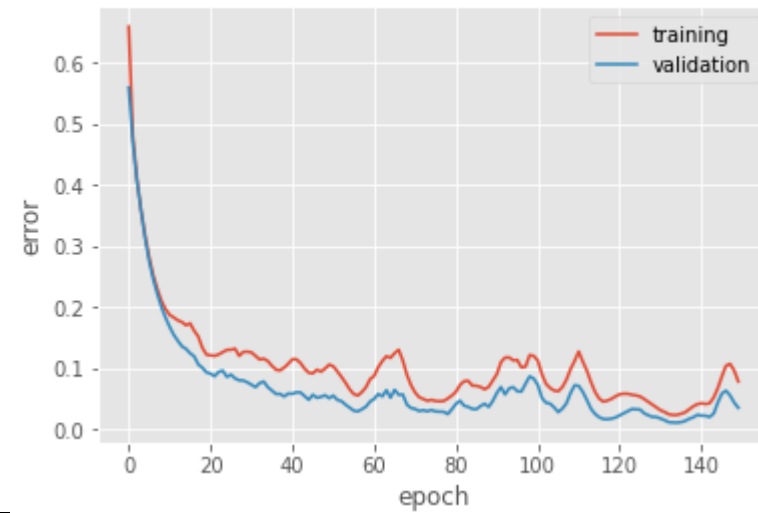
Bidirectional  
MSLE for 2012-2



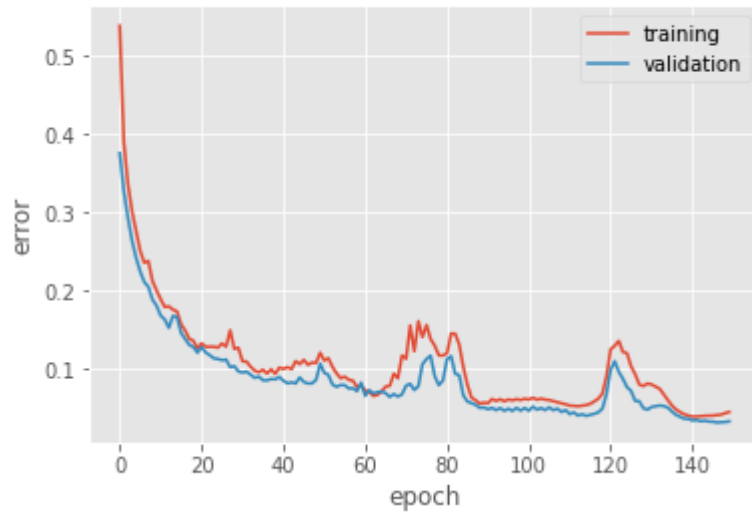
Bidirectional  
RMSE for 2012-2



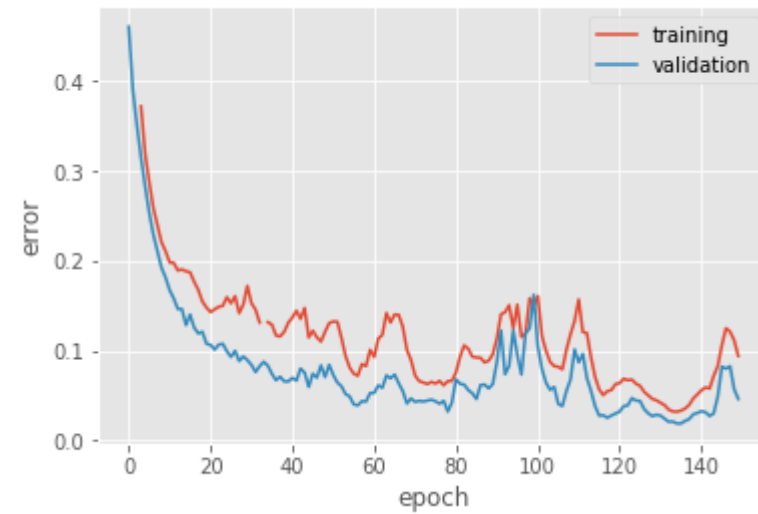
Bidirectional  
RMSE for 2012-2

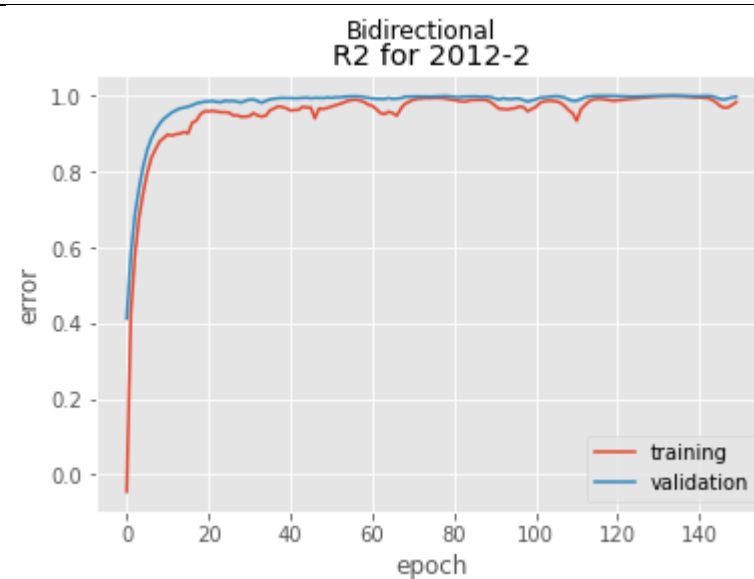
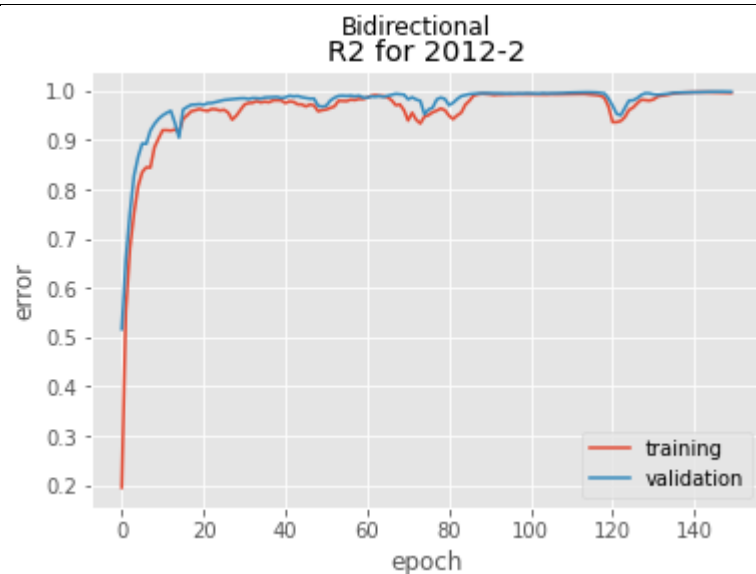


Bidirectional  
RMSLE for 2012-2

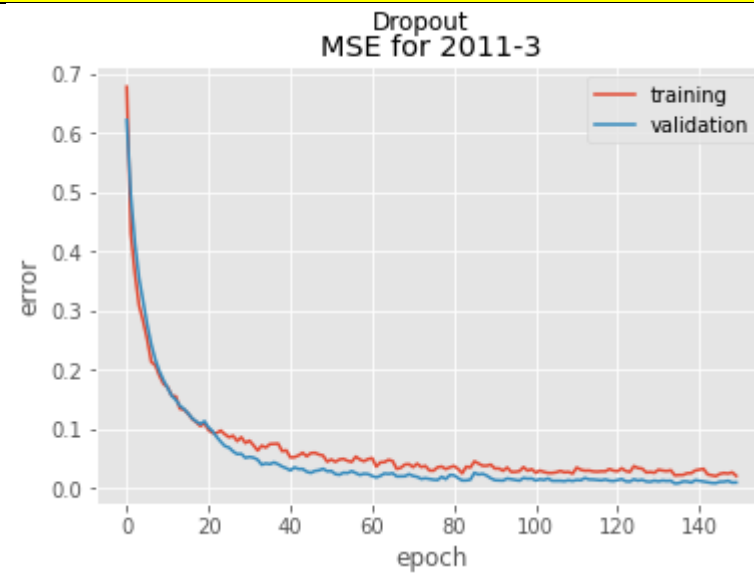
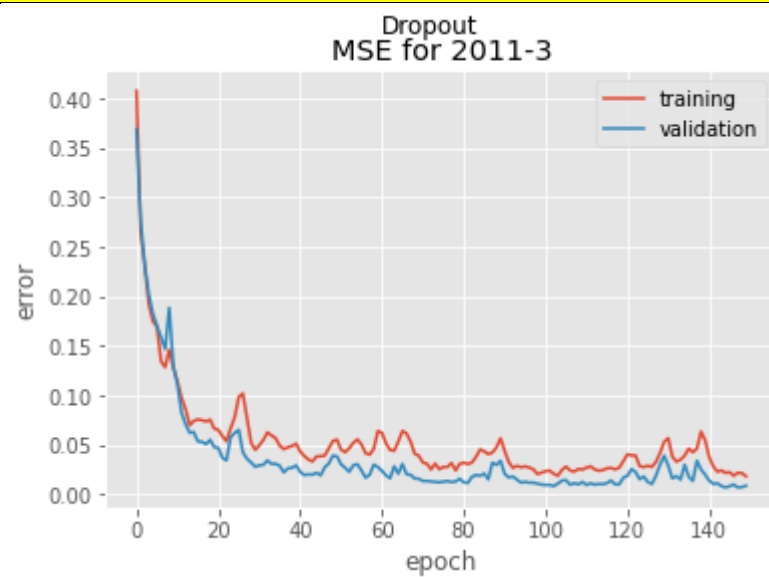


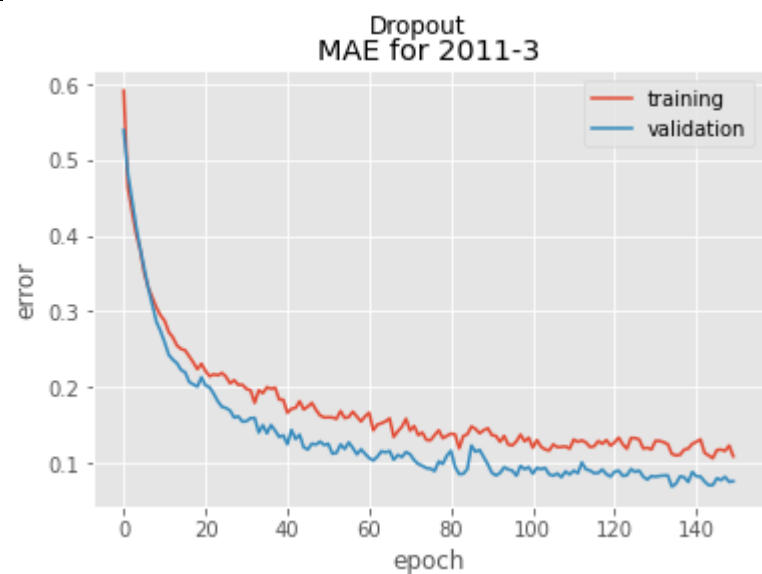
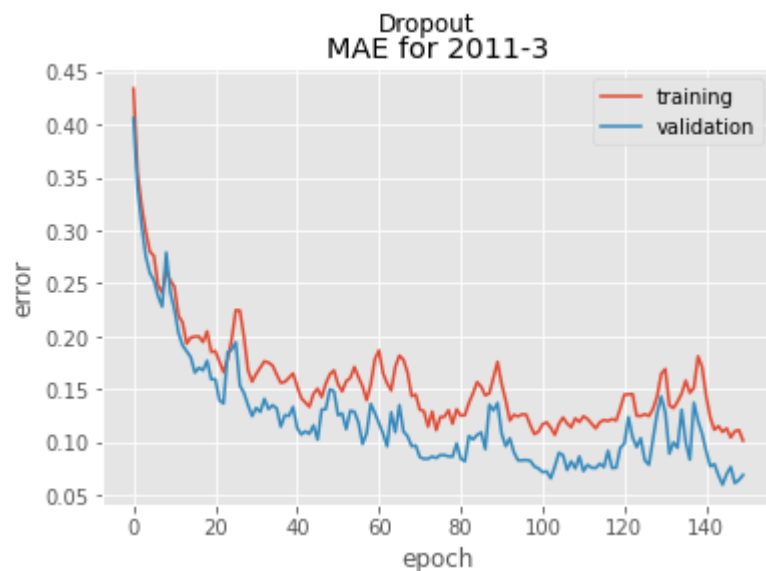
Bidirectional  
RMSLE for 2012-2



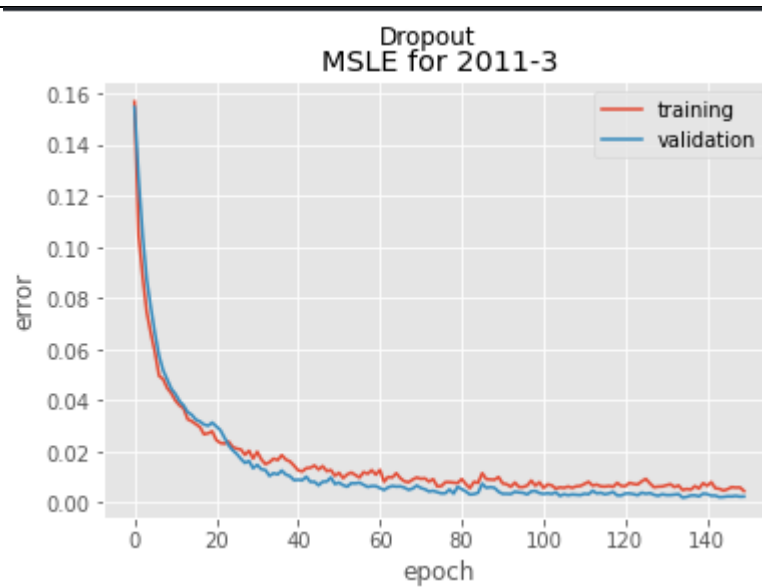
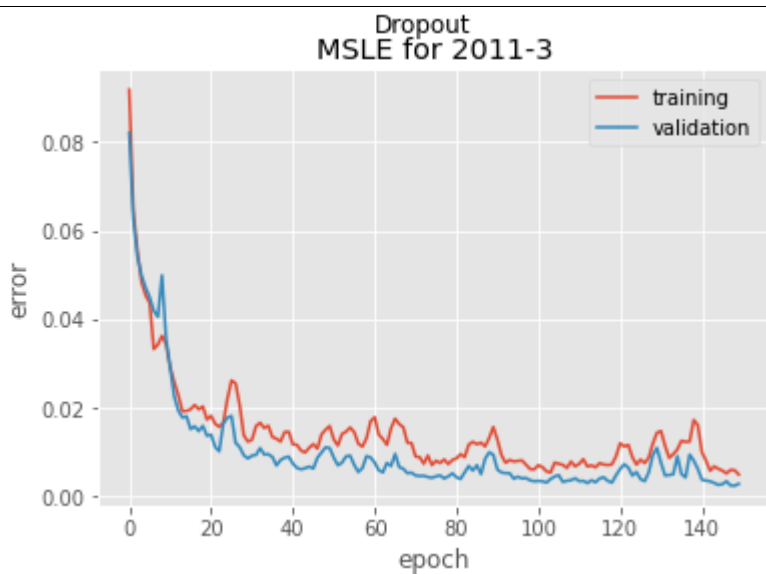


Dropout

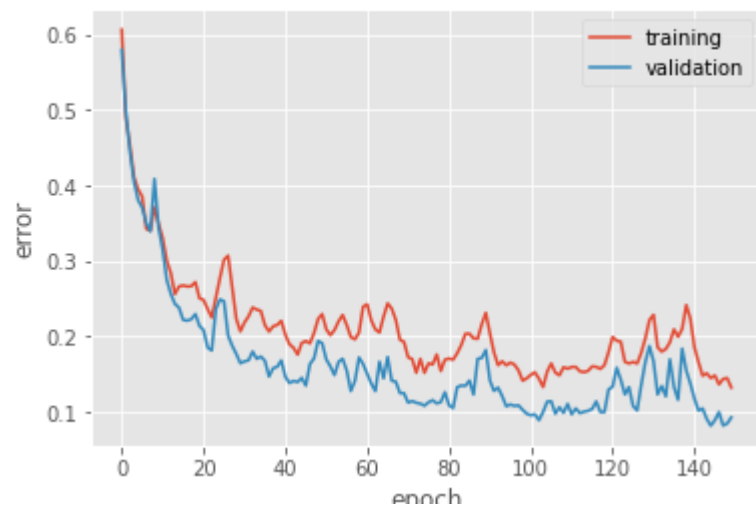




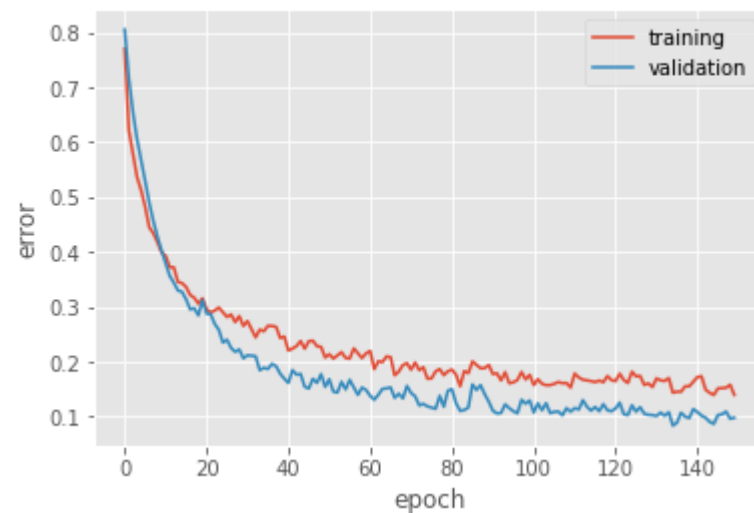
D



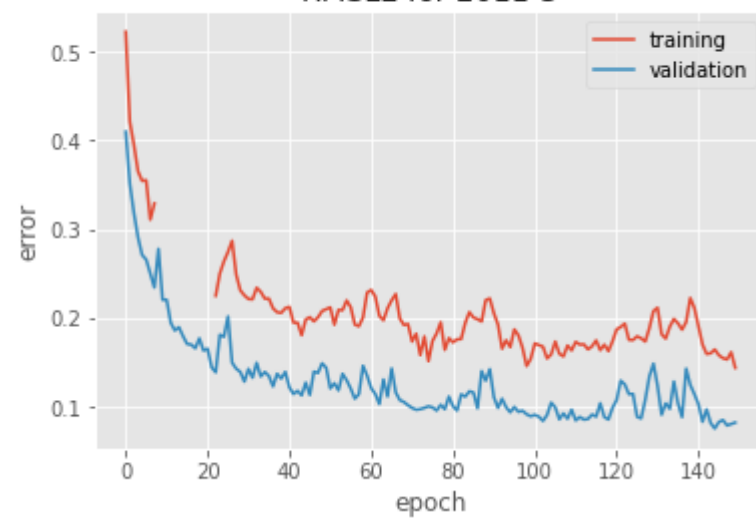
Dropout  
RMSE for 2011-3



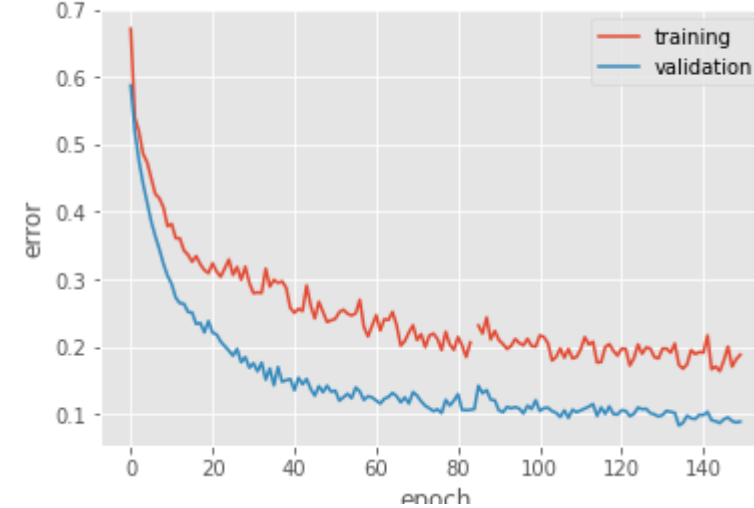
Dropout  
RMSE for 2011-3



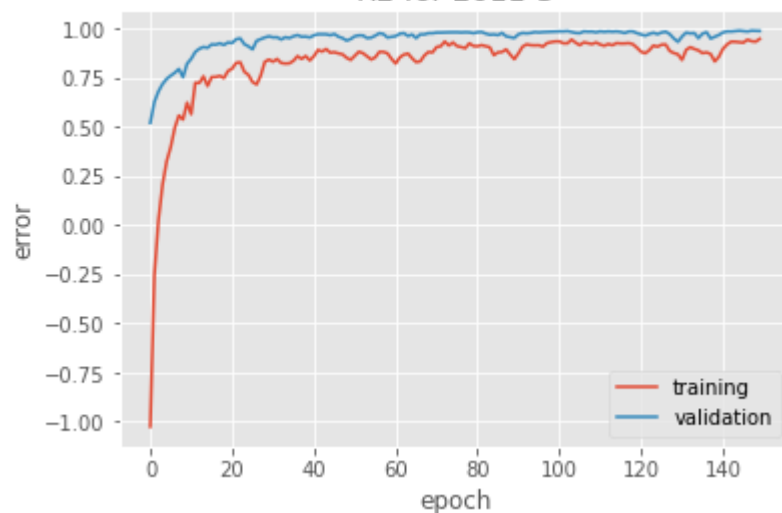
Dropout  
RMSLE for 2011-3



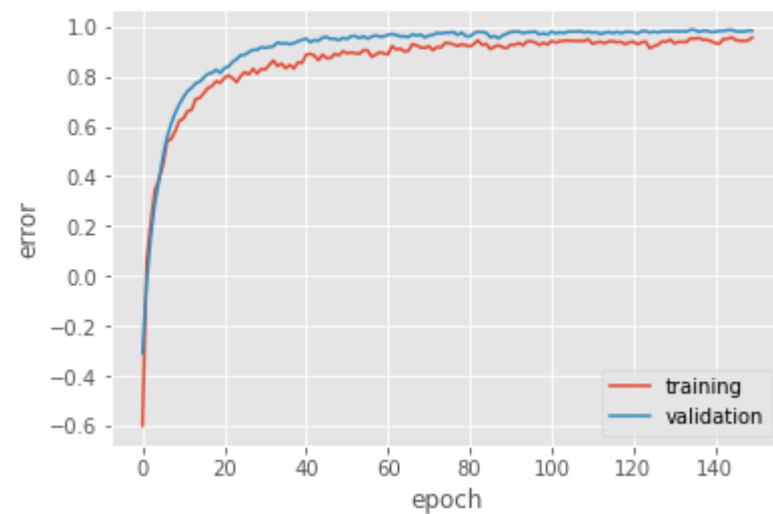
Dropout  
RMSLE for 2011-3



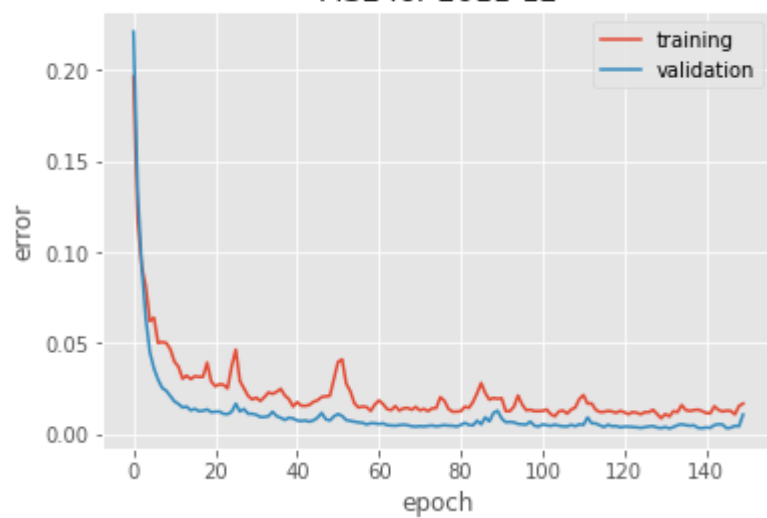
Dropout  
R2 for 2011-3



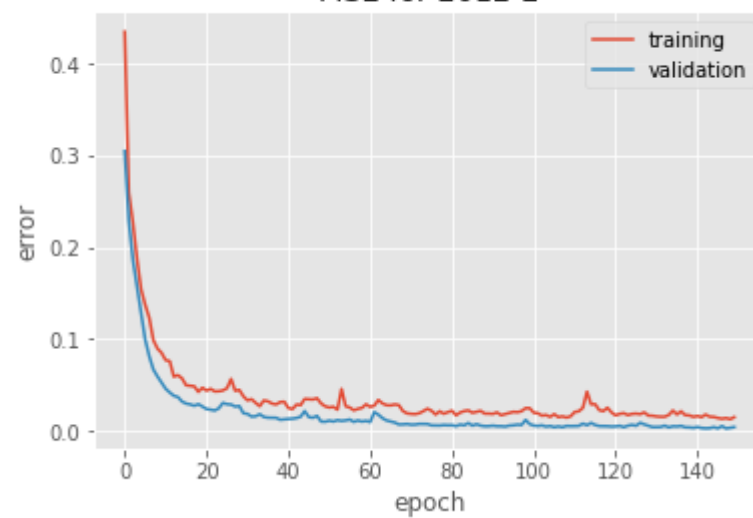
Dropout  
R2 for 2011-3



Dropout  
MSE for 2011-12

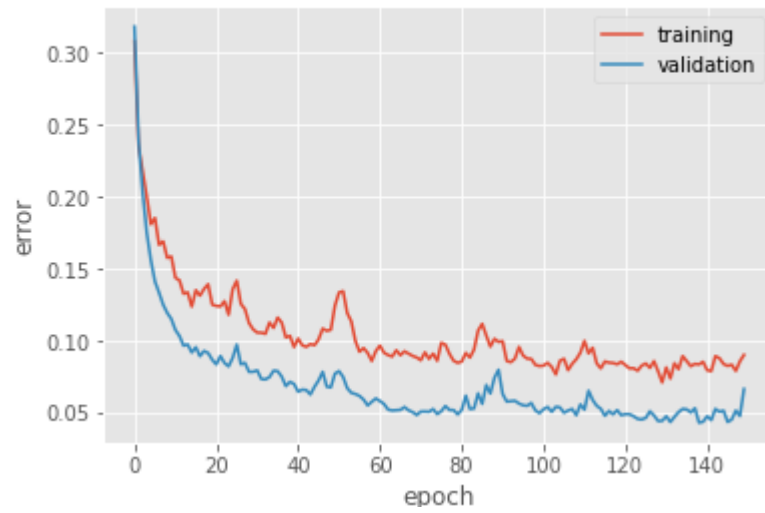


Dropout  
MSE for 2012-2

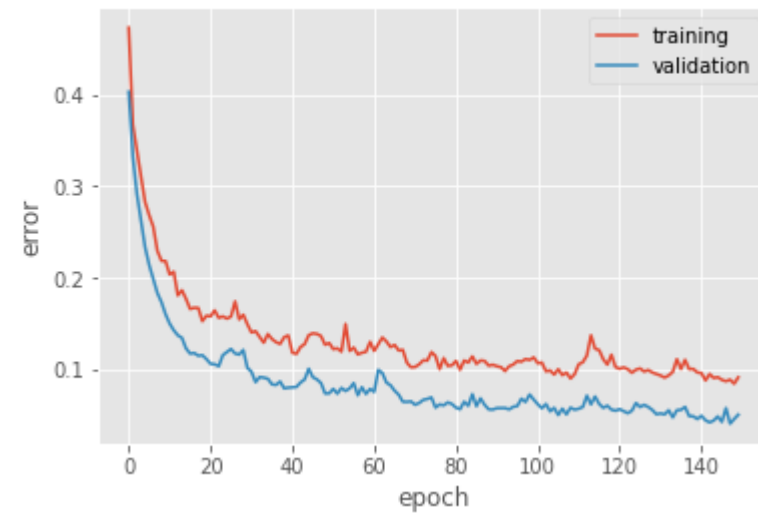




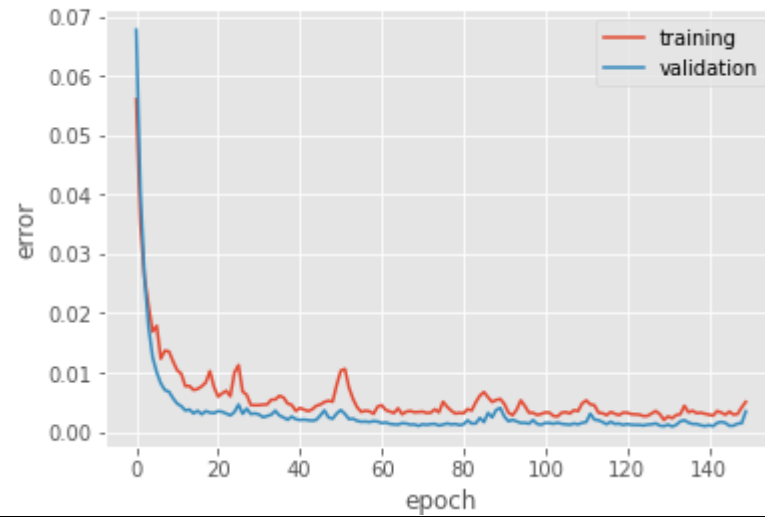
Dropout  
MAE for 2011-12



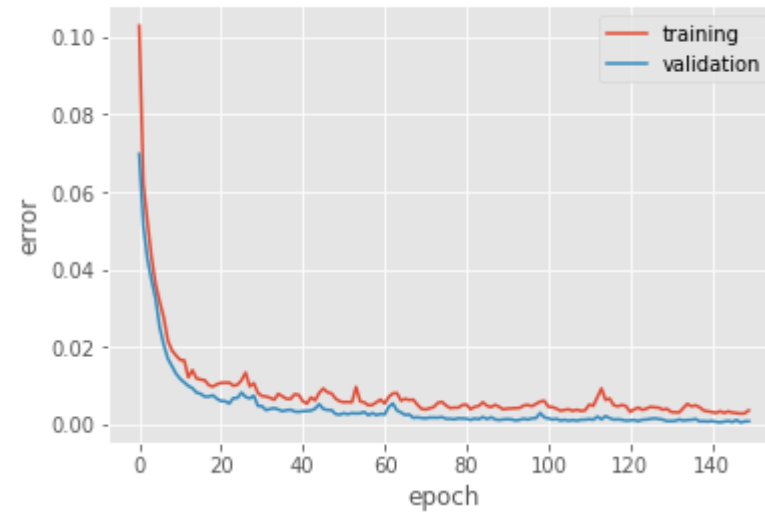
Dropout  
MAE for 2012-2



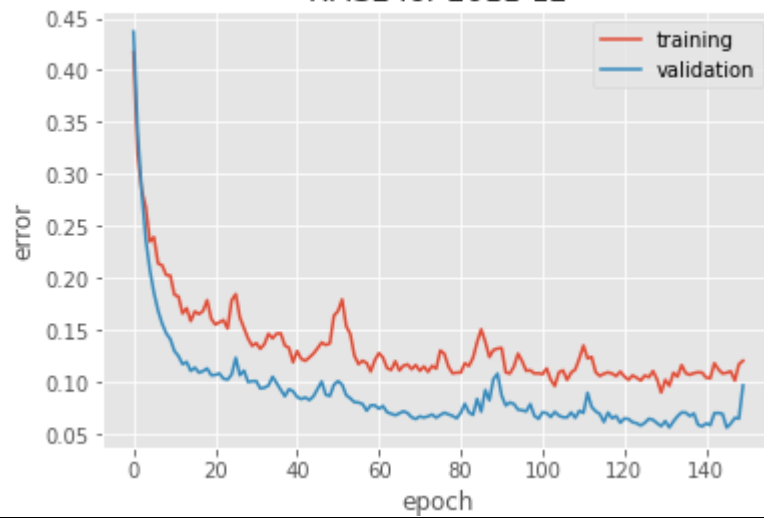
Dropout  
MSLE for 2011-12



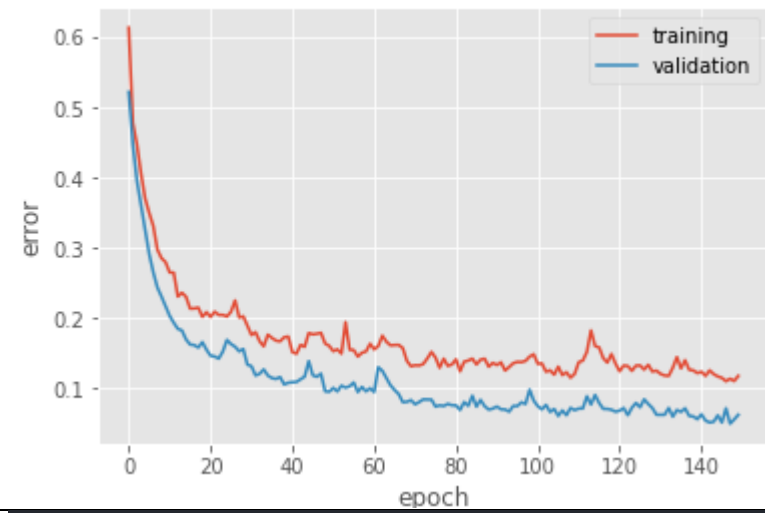
Dropout  
MSLE for 2012-2



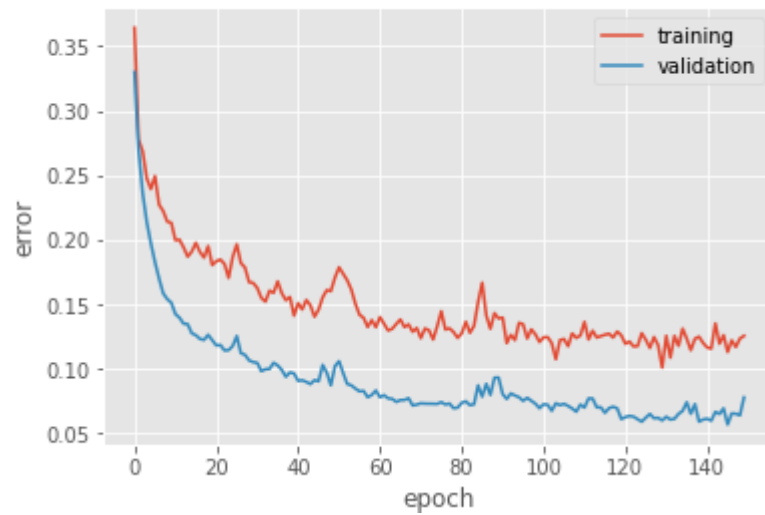
Dropout  
RMSE for 2011-12



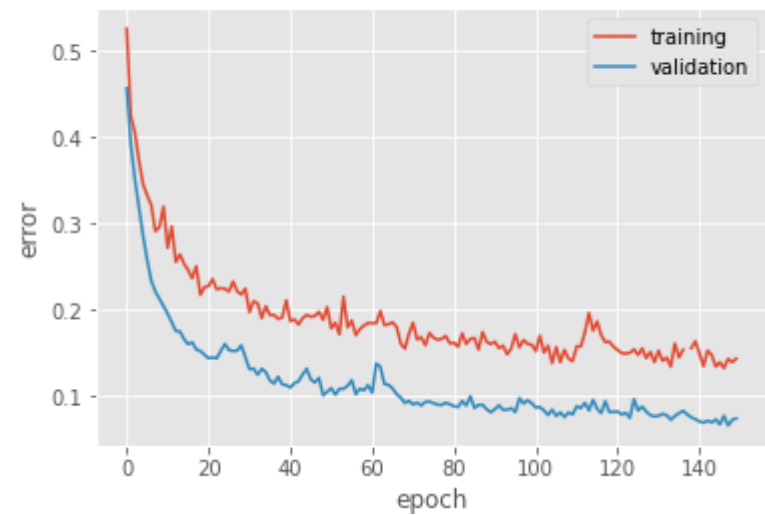
Dropout  
RMSE for 2012-2



Dropout  
RMSLE for 2011-12

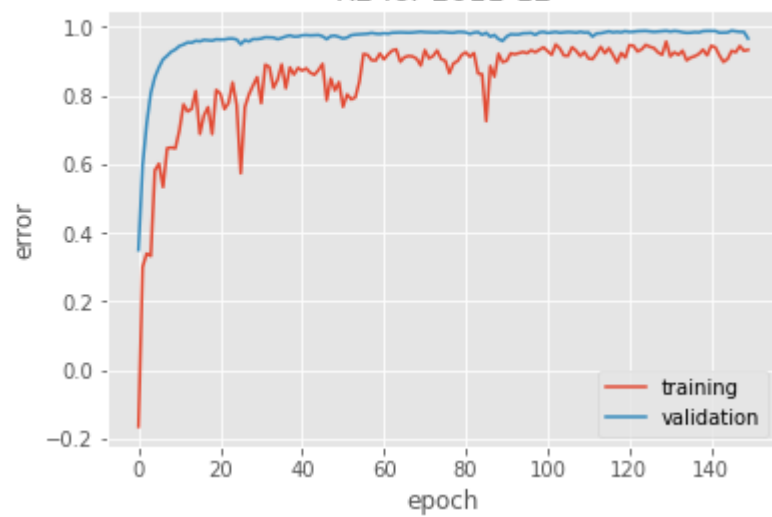


Dropout  
RMSLE for 2012-2

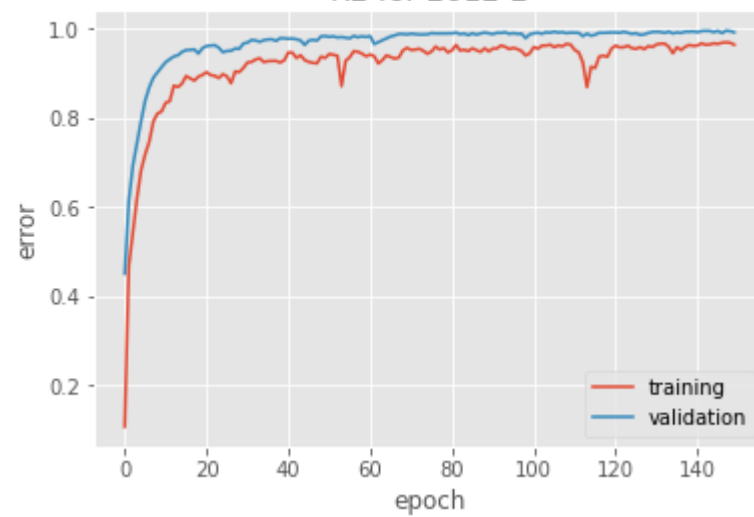


D

Dropout  
R2 for 2011-12



Dropout  
R2 for 2012-2



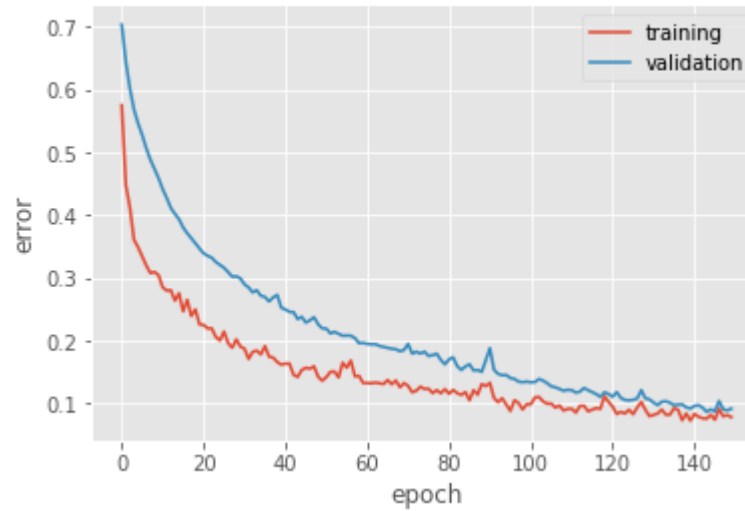
**n\_past = 12**

**units = 20**

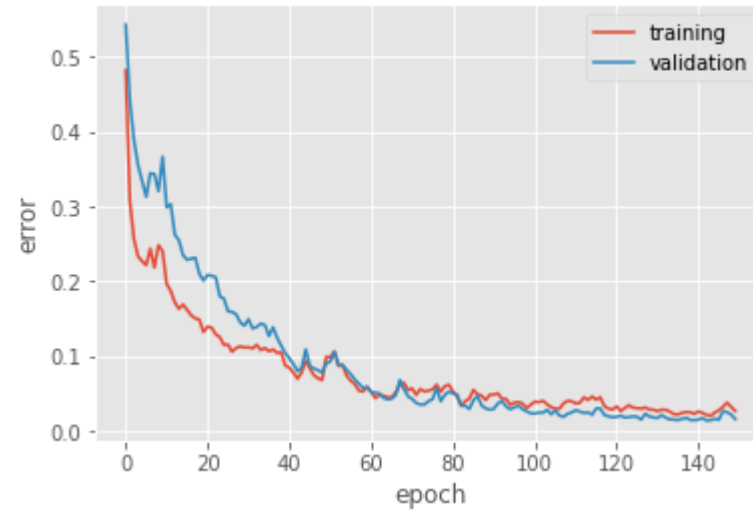
**units = 100**

**Bidirectional Dropout**

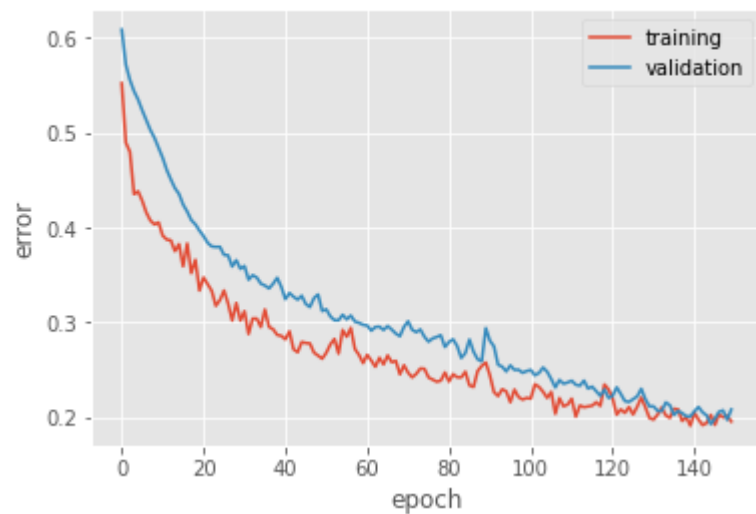
Bidirectional Dropout  
MSE for 2011-2



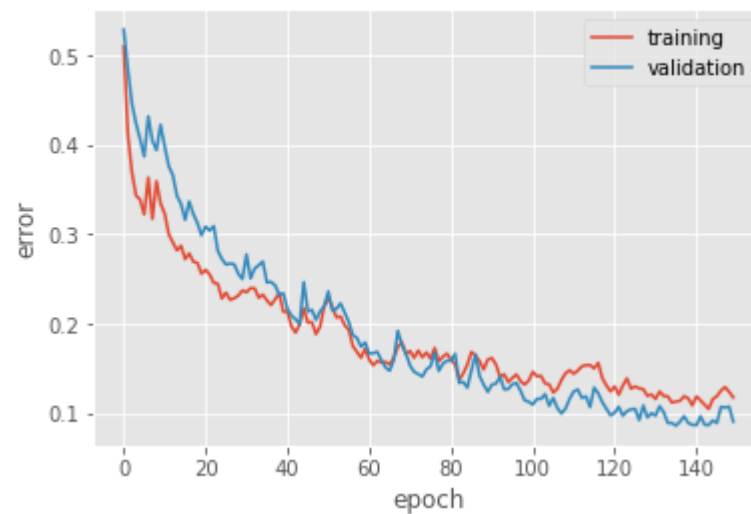
Bidirectional Dropout  
MSE for 2011-2



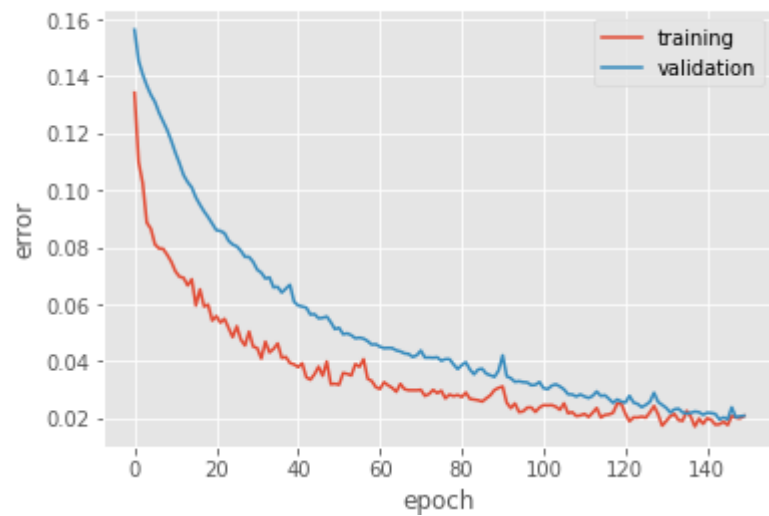
Bidirectional Dropout  
MAE for 2011-2



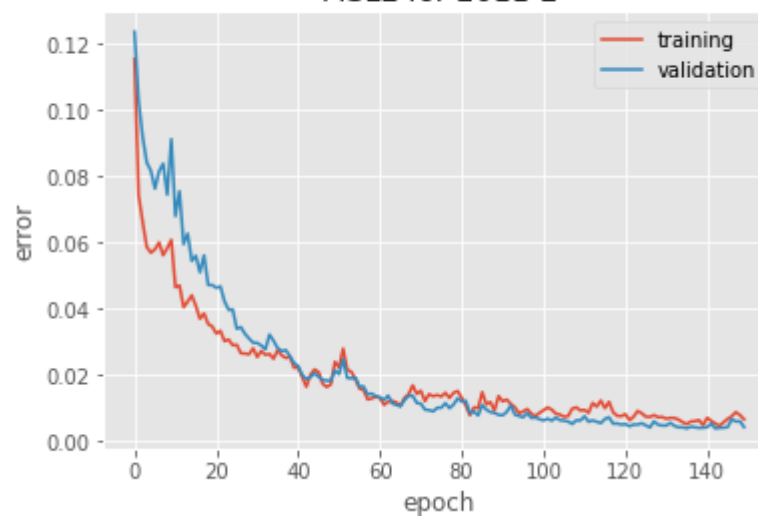
Bidirectional Dropout  
MAE for 2011-2



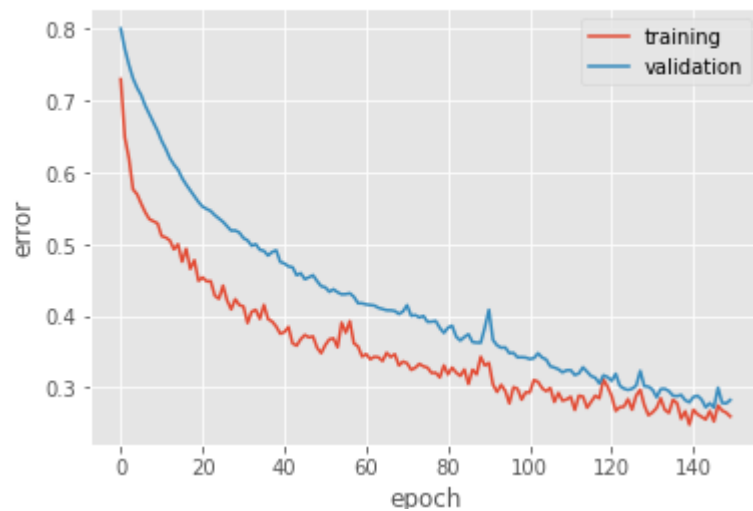
Bidirectional Dropout  
MSLE for 2011-2



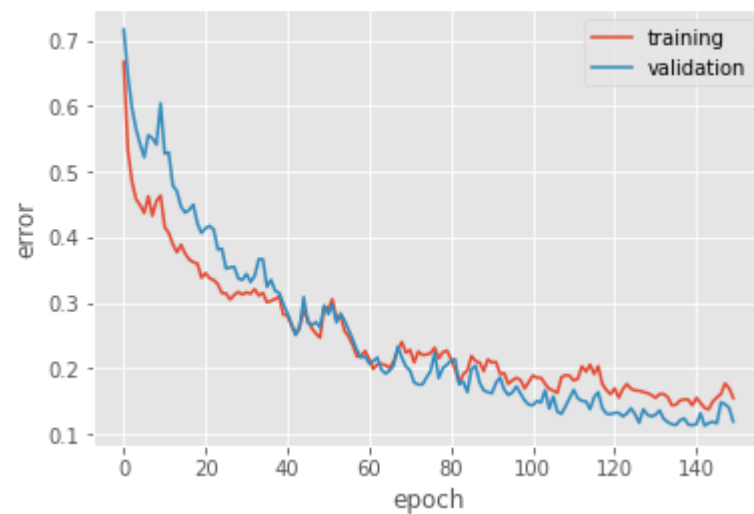
Bidirectional Dropout  
MSLE for 2011-2



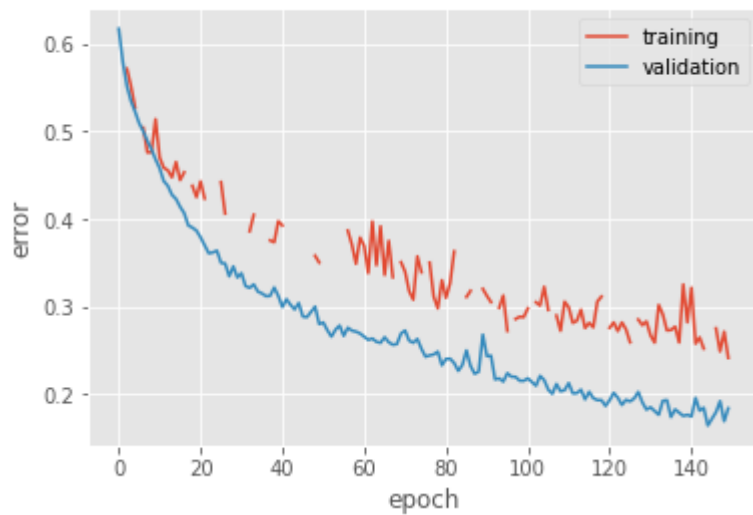
Bidirectional Dropout  
RMSE for 2011-2



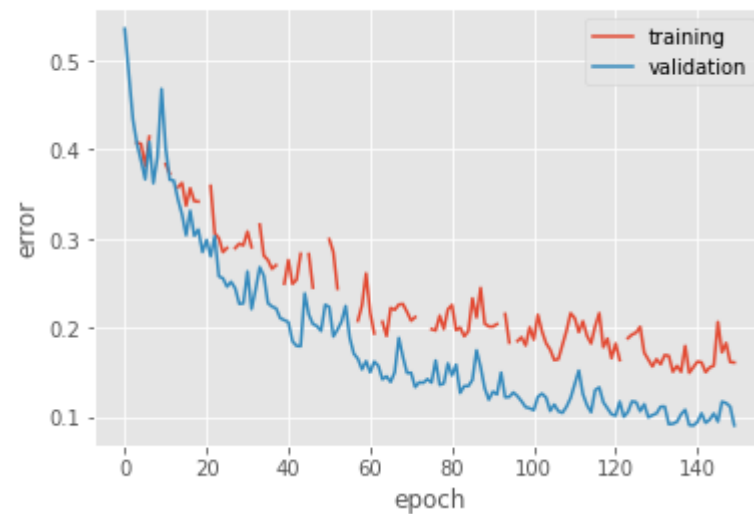
Bidirectional Dropout  
RMSE for 2011-2



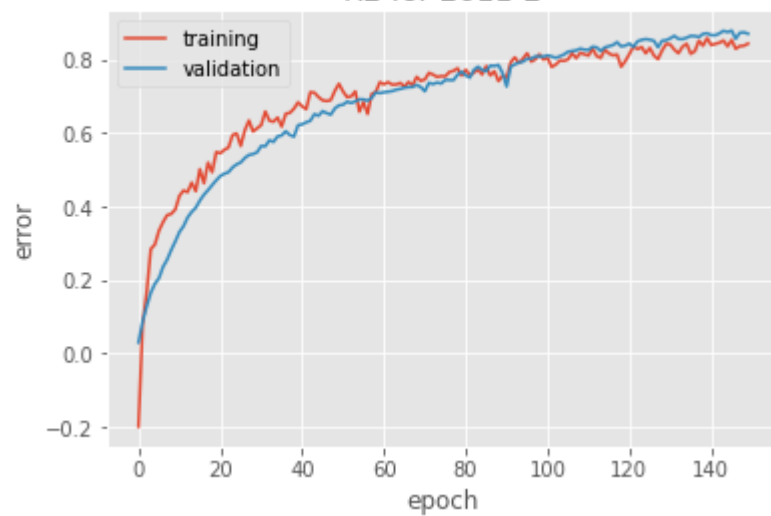
Bidirectional Dropout  
RMSLE for 2011-2



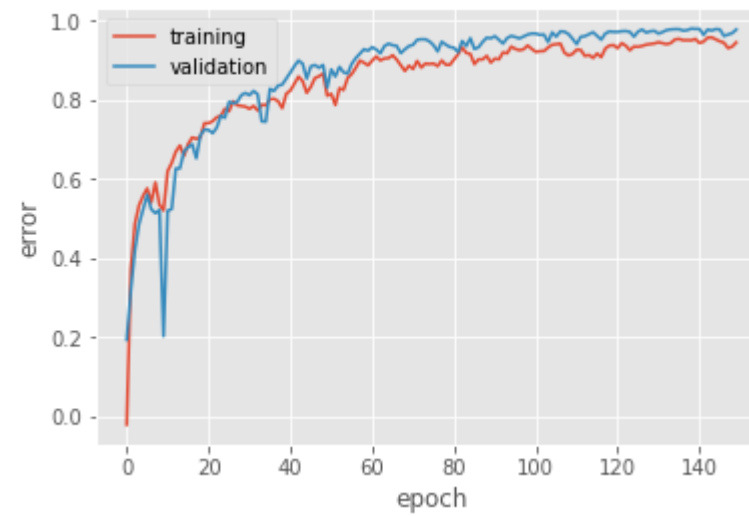
Bidirectional Dropout  
RMSLE for 2011-2



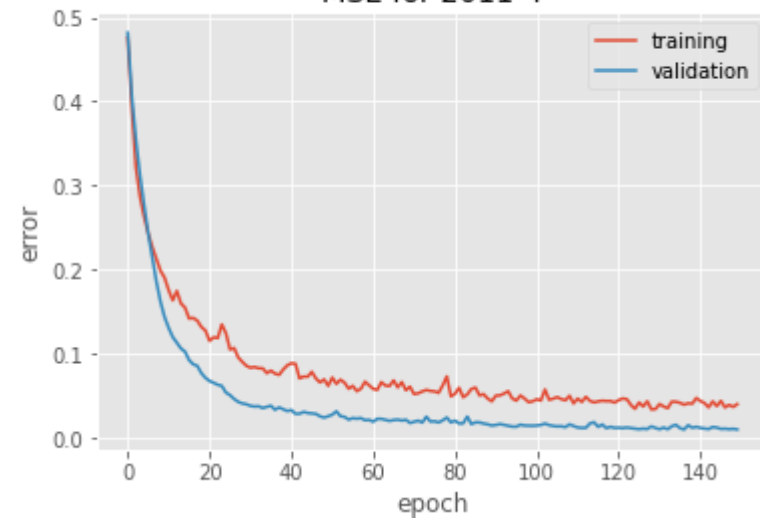
Bidirectional Dropout  
R2 for 2011-2



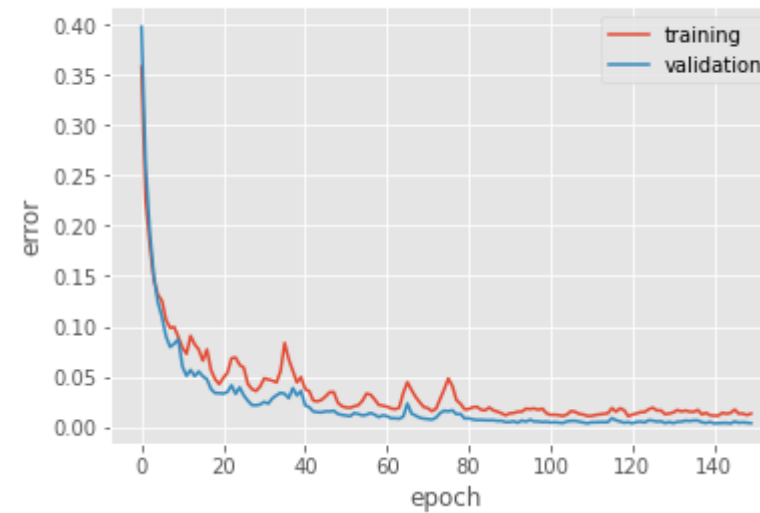
Bidirectional Dropout  
R2 for 2011-2



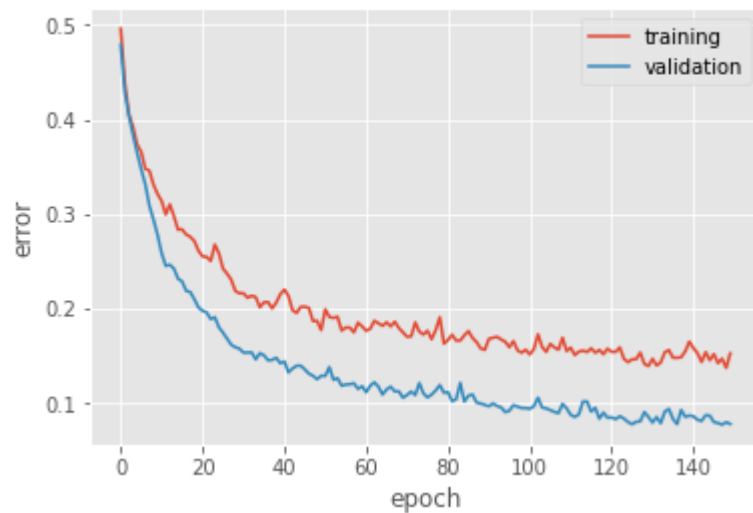
Bidirectional Dropout  
MSE for 2011-4



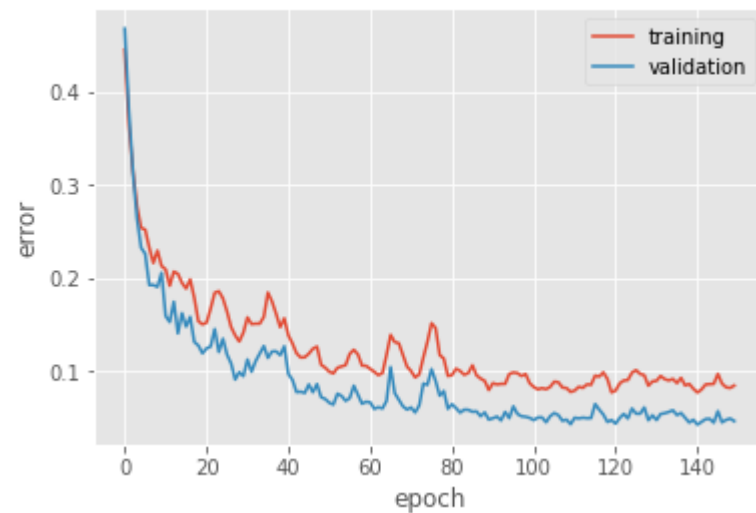
Bidirectional Dropout  
MSE for 2011-4



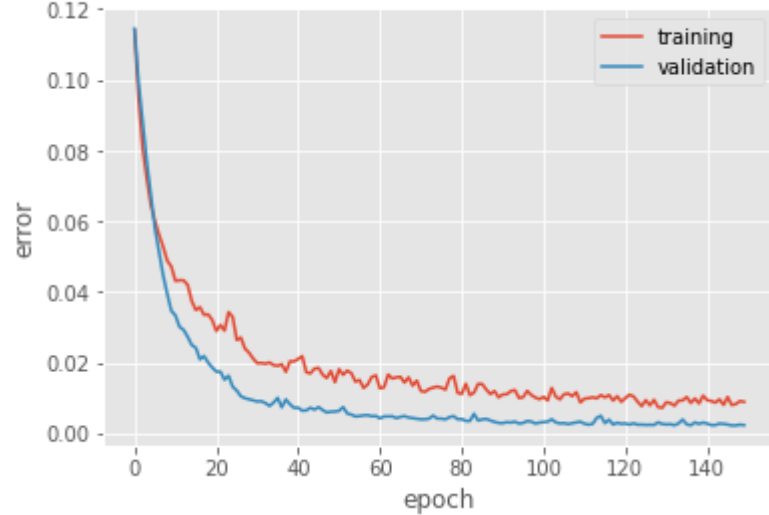
Bidirectional Dropout  
MAE for 2011-4



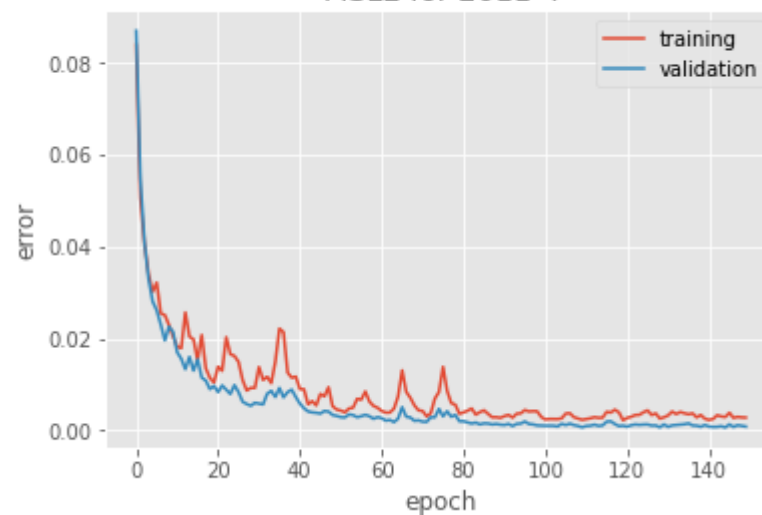
Bidirectional Dropout  
MAE for 2011-4



Bidirectional Dropout  
MSLE for 2011-4

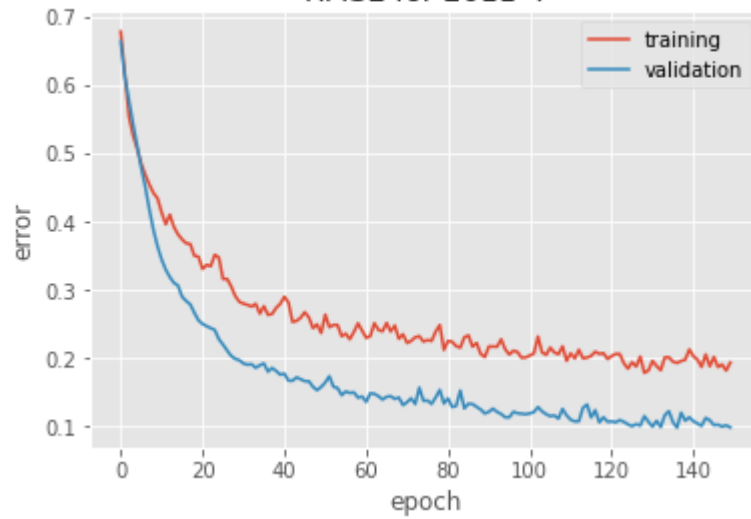


Bidirectional Dropout  
MSLE for 2011-4

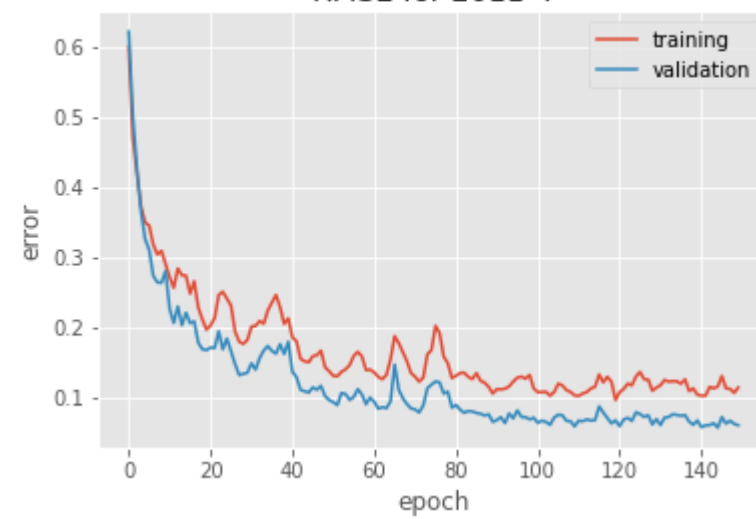




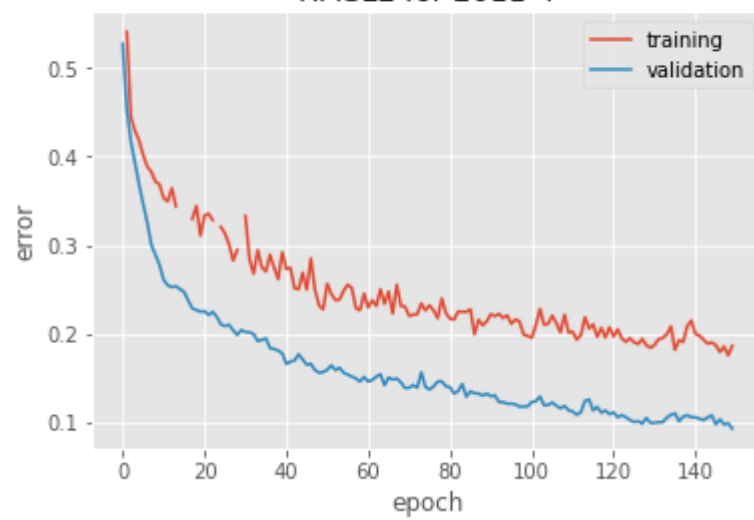
Bidirectional Dropout  
RMSE for 2011-4



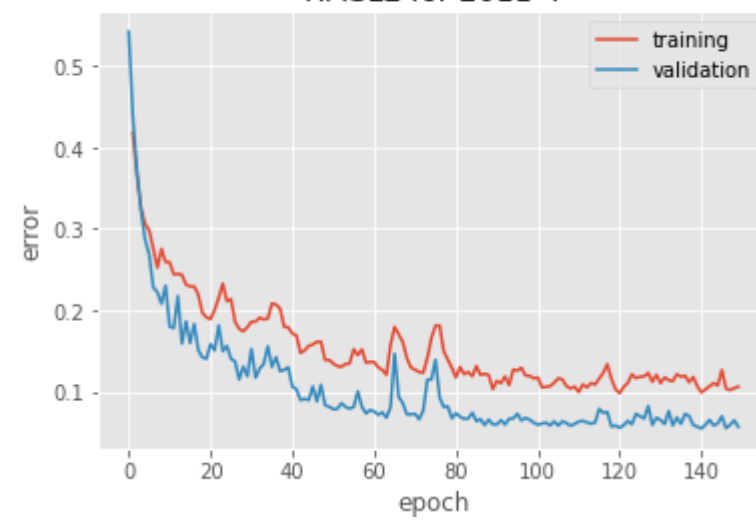
Bidirectional Dropout  
RMSE for 2011-4



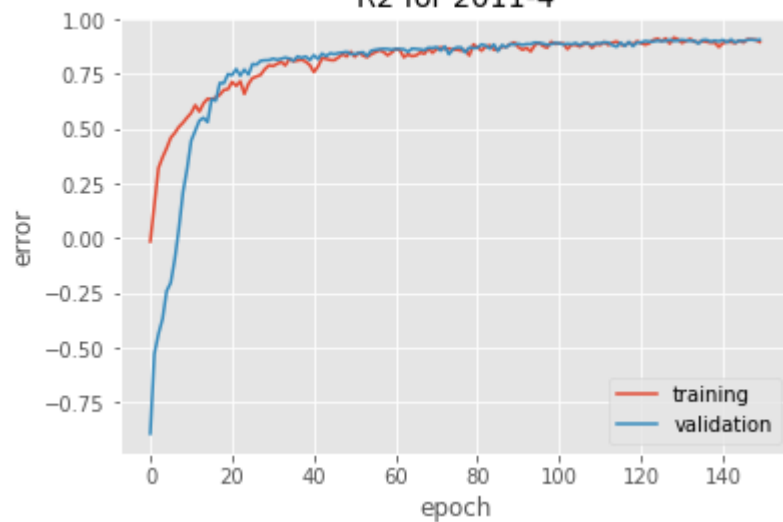
Bidirectional Dropout  
RMSLE for 2011-4



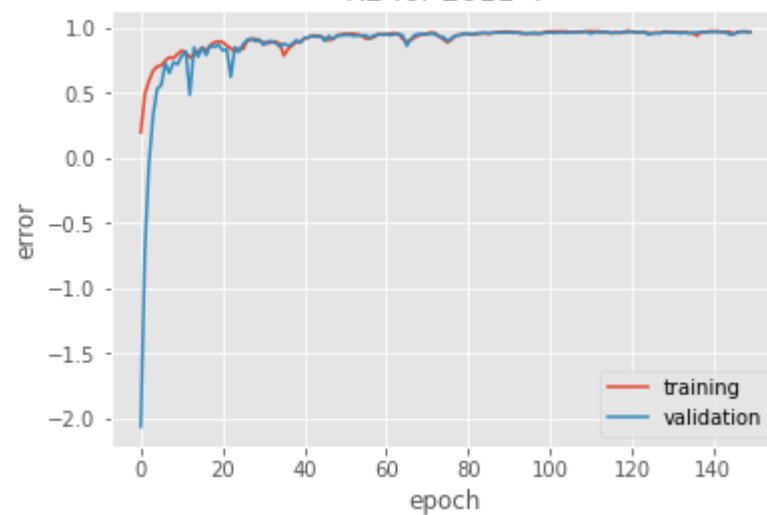
Bidirectional Dropout  
RMSLE for 2011-4



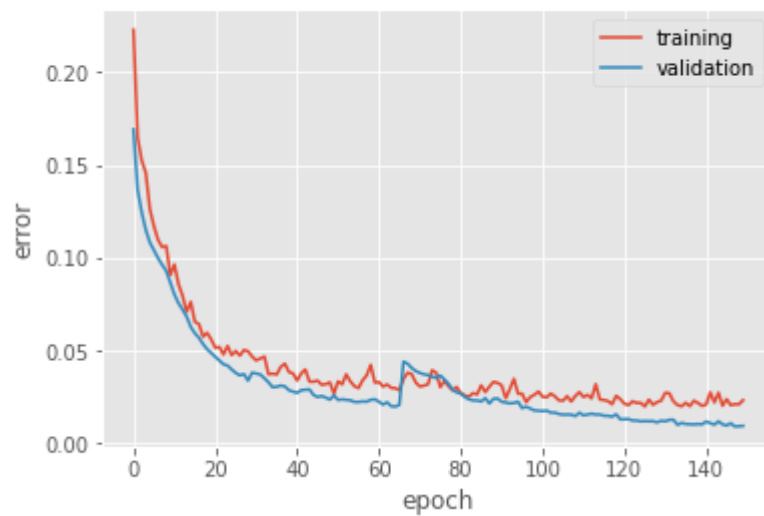
Bidirectional Dropout  
R2 for 2011-4



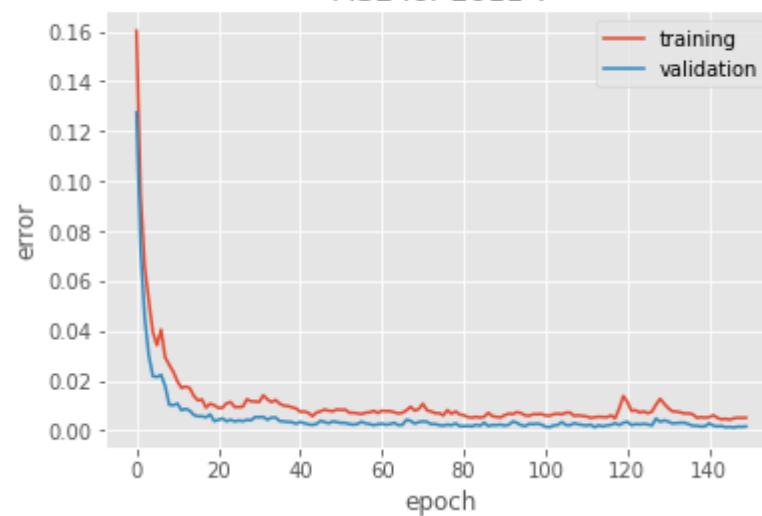
Bidirectional Dropout  
R2 for 2011-4



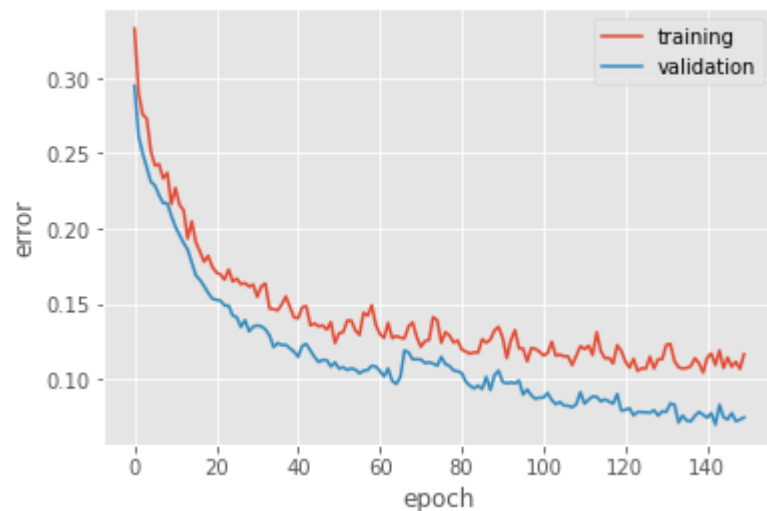
Bidirectional Dropout  
MSE for 2011-7



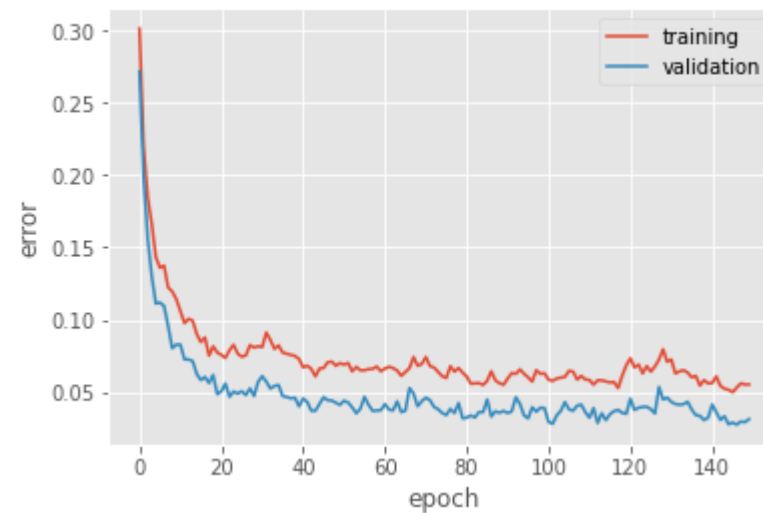
Bidirectional Dropout  
MSE for 2011-7



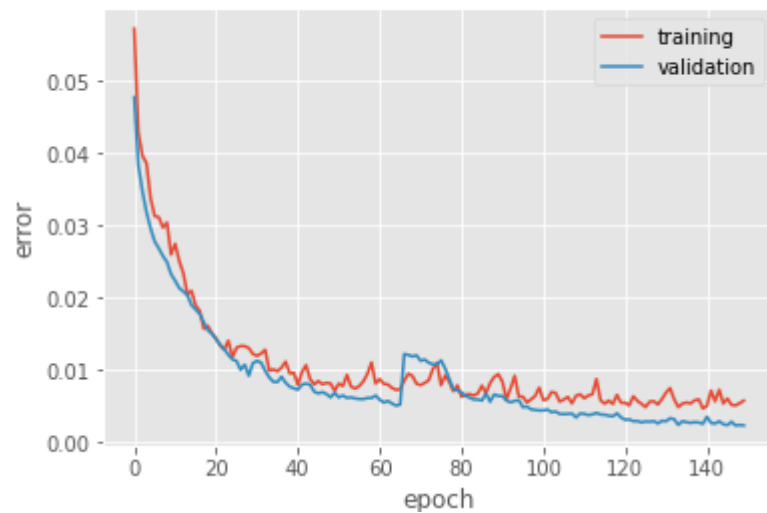
Bidirectional Dropout  
MAE for 2011-7



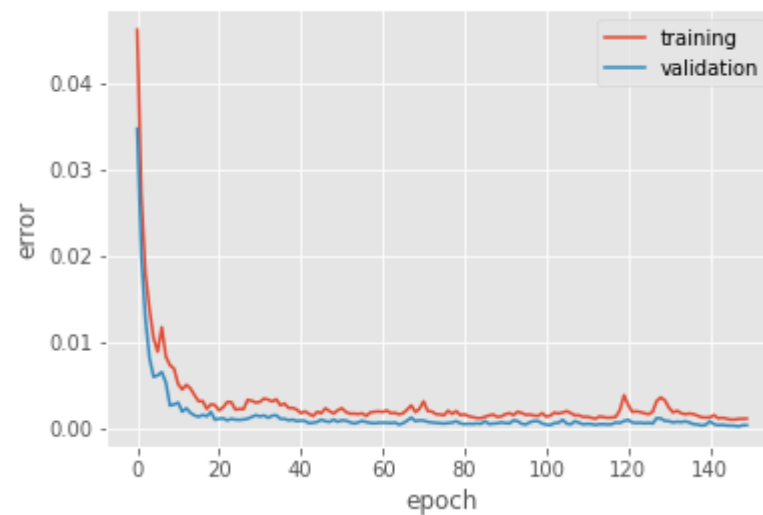
Bidirectional Dropout  
MAE for 2011-7



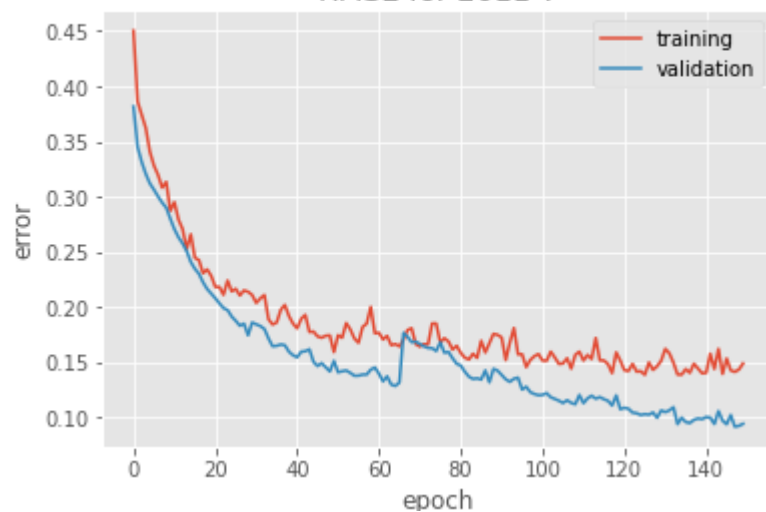
Bidirectional Dropout  
MSLE for 2011-7



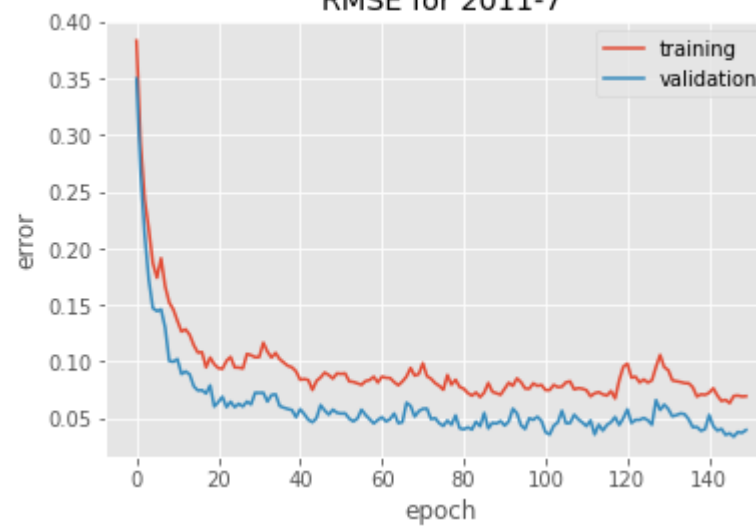
Bidirectional Dropout  
MSLE for 2011-7



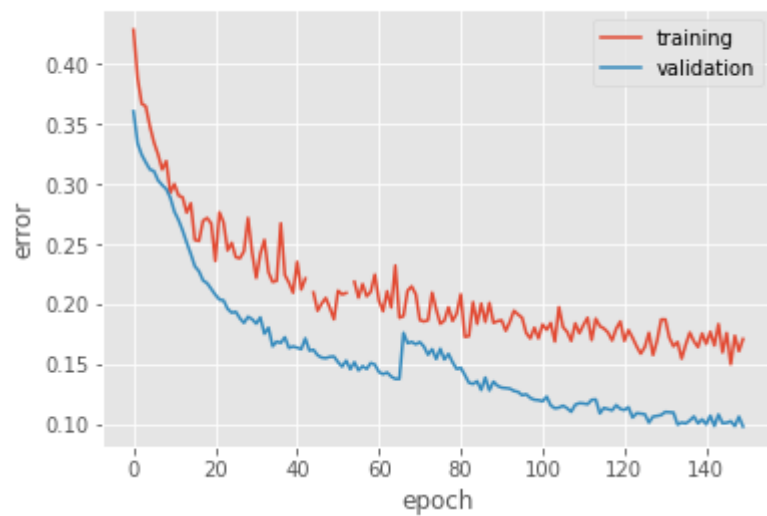
Bidirectional Dropout  
RMSE for 2011-7



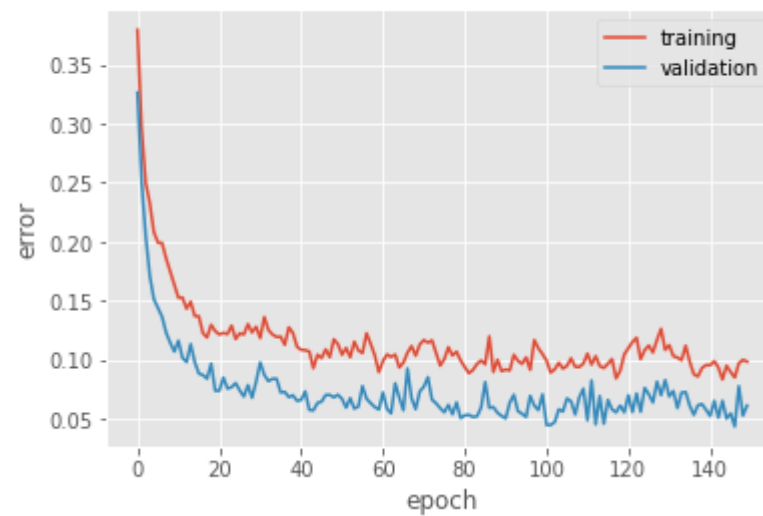
Bidirectional Dropout  
RMSE for 2011-7



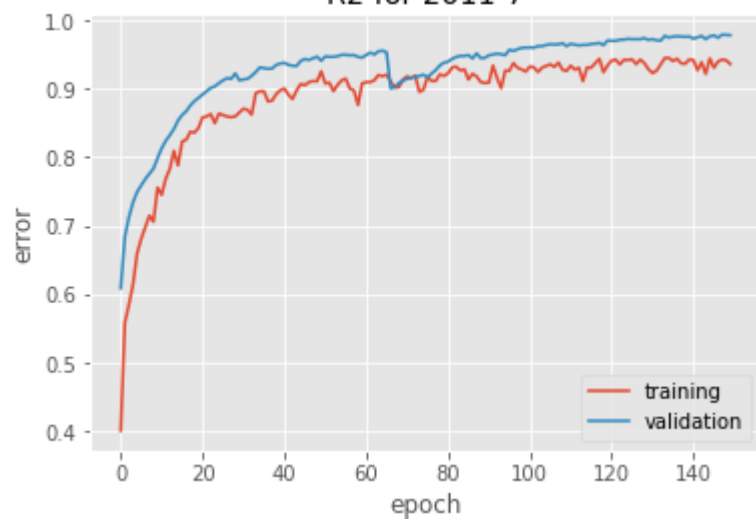
Bidirectional Dropout  
RMSLE for 2011-7



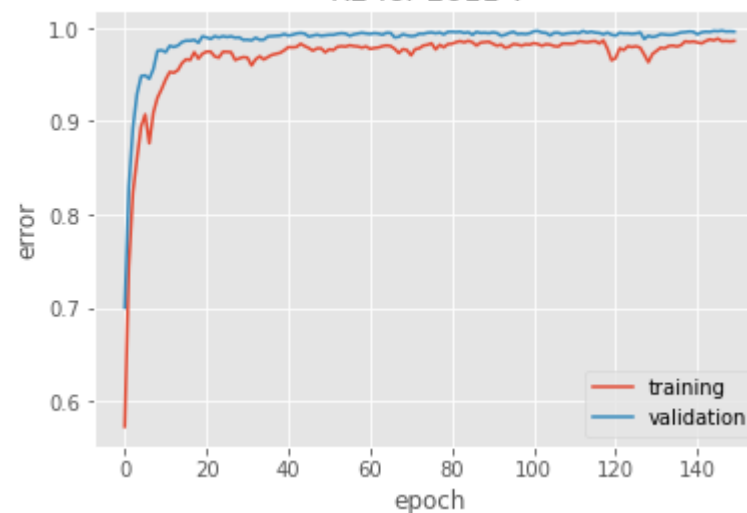
Bidirectional Dropout  
RMSLE for 2011-7



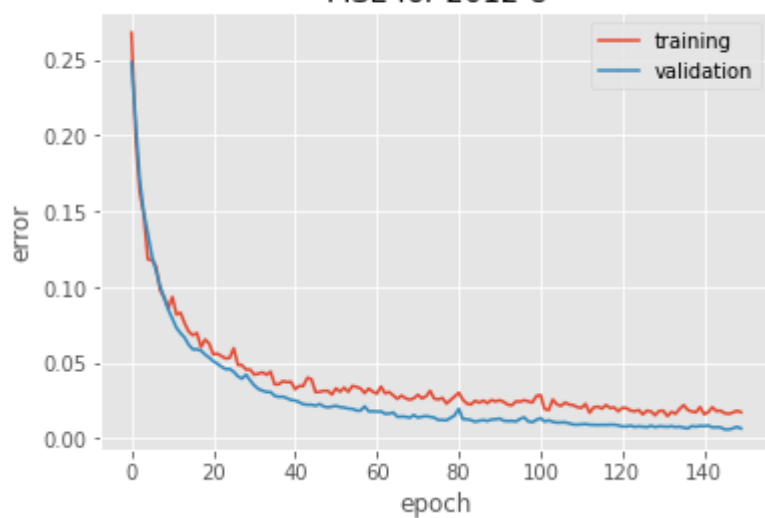
Bidirectional Dropout  
R2 for 2011-7



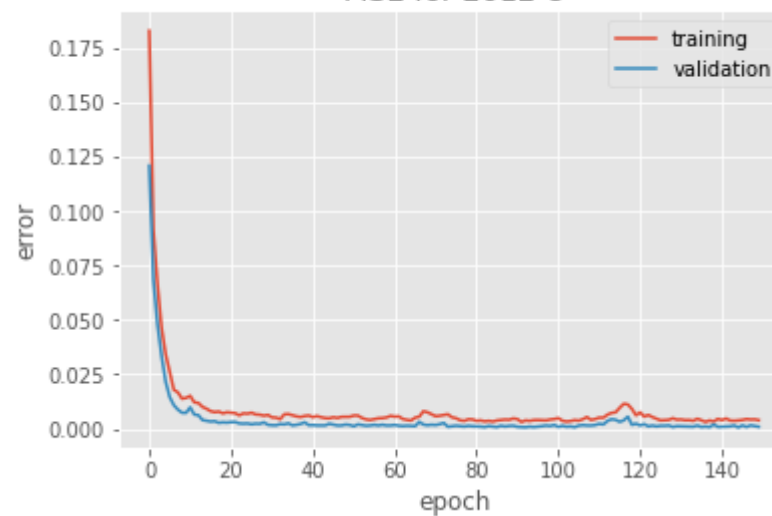
Bidirectional Dropout  
R2 for 2011-7



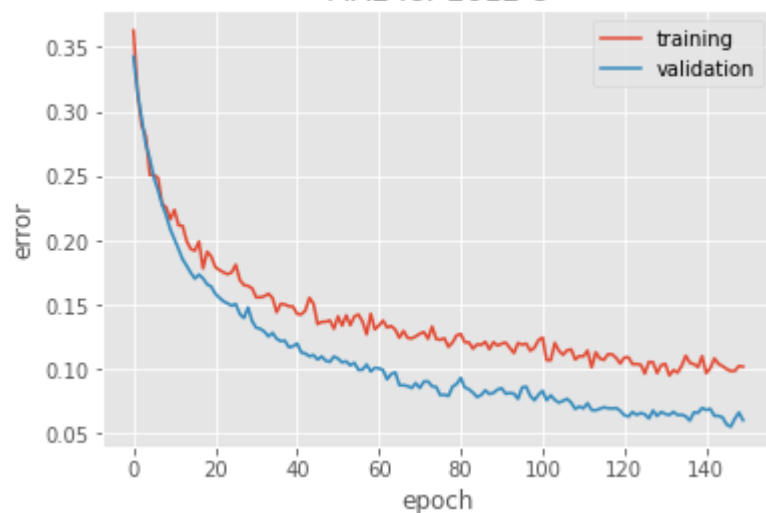
Bidirectional Dropout  
MSE for 2012-8



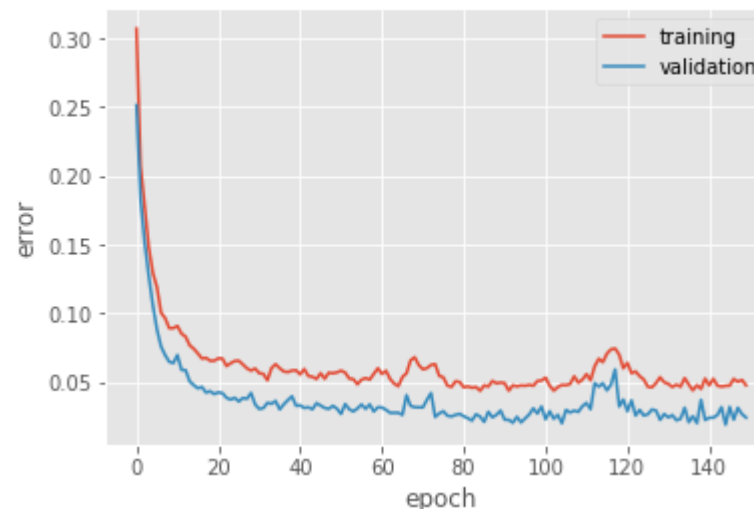
Bidirectional Dropout  
MSE for 2012-8



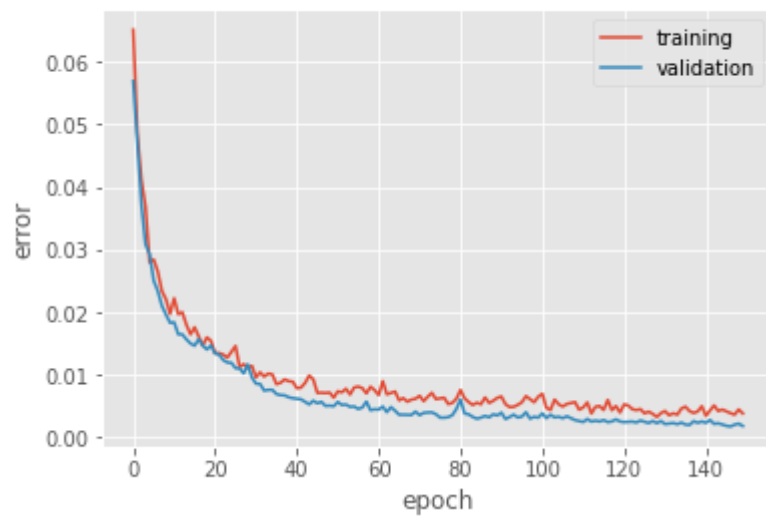
Bidirectional Dropout  
MAE for 2012-8



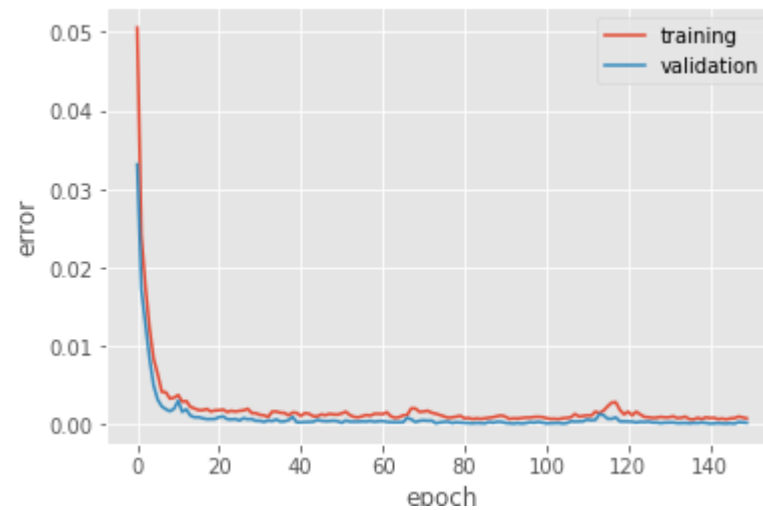
Bidirectional Dropout  
MAE for 2012-8



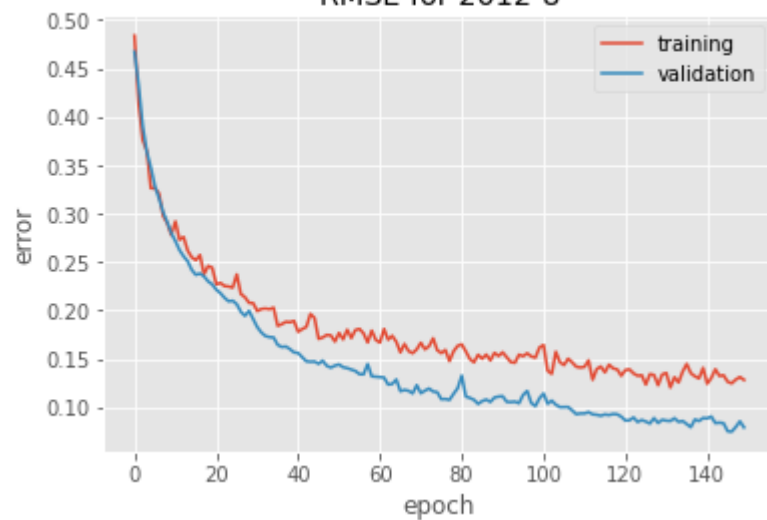
Bidirectional Dropout  
MSLE for 2012-8



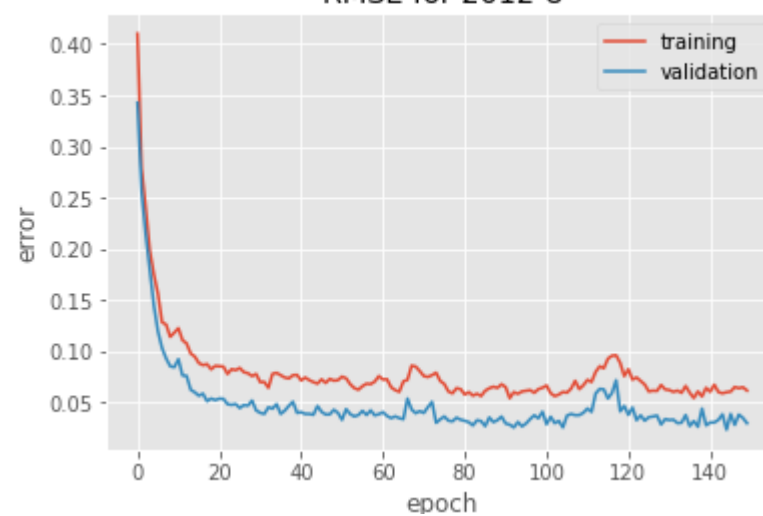
Bidirectional Dropout  
MSLE for 2012-8



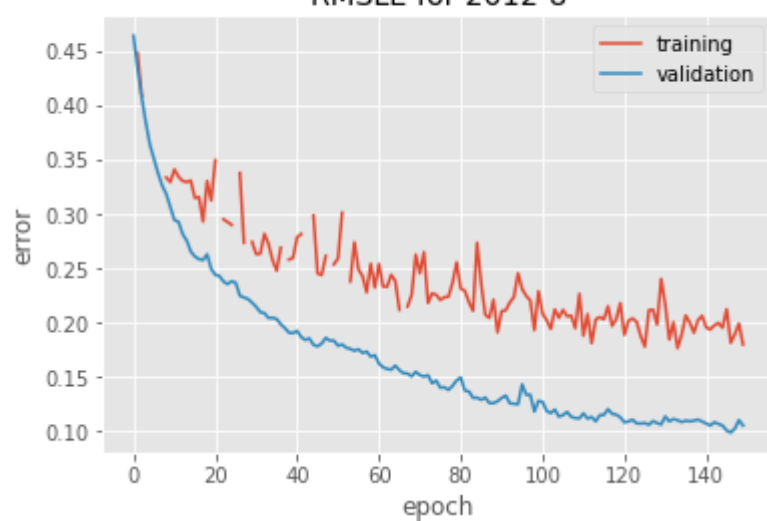
Bidirectional Dropout  
RMSE for 2012-8



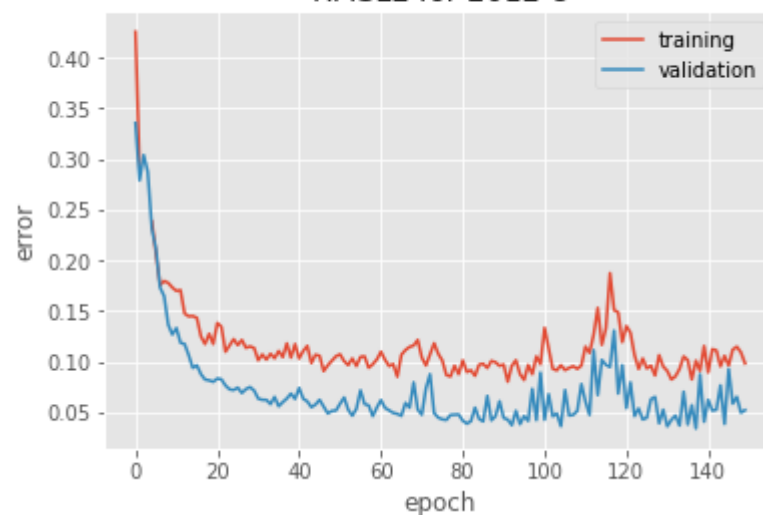
Bidirectional Dropout  
RMSE for 2012-8



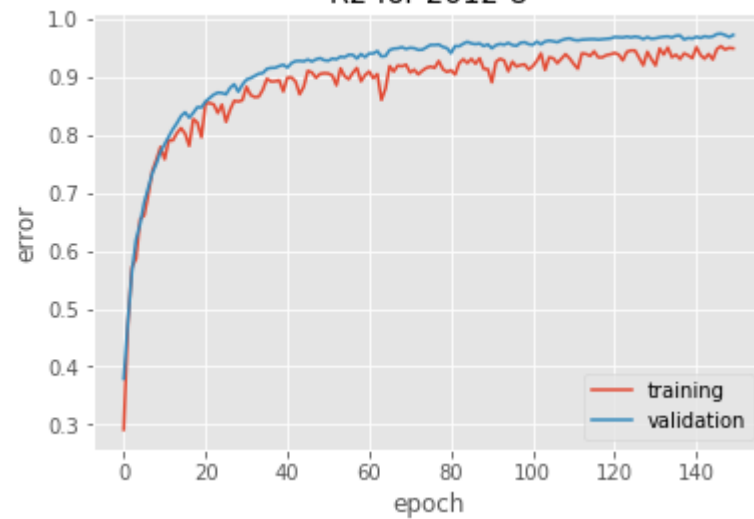
Bidirectional Dropout  
RMSLE for 2012-8



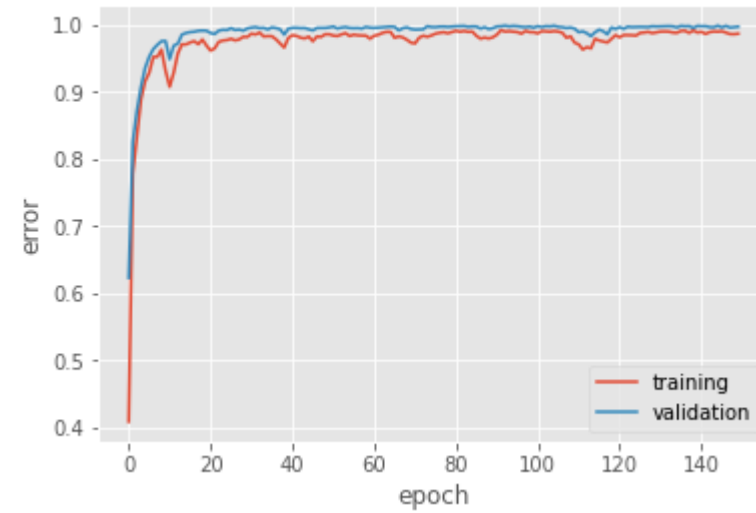
Bidirectional Dropout  
RMSLE for 2012-8



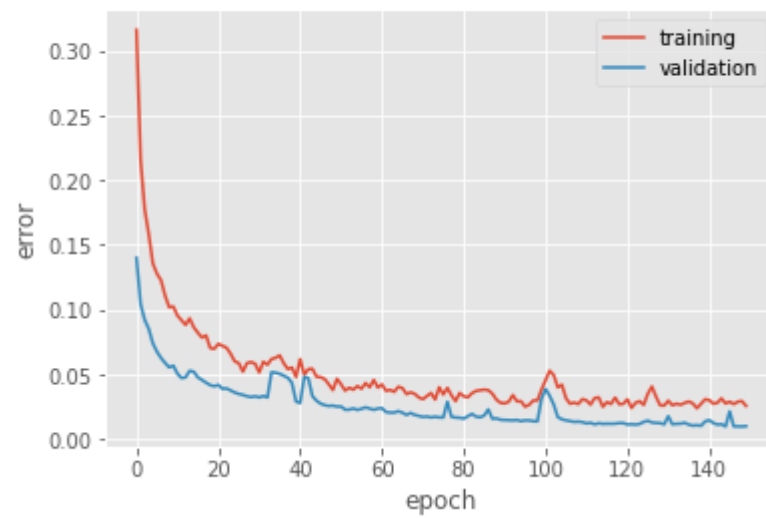
Bidirectional Dropout  
R2 for 2012-8



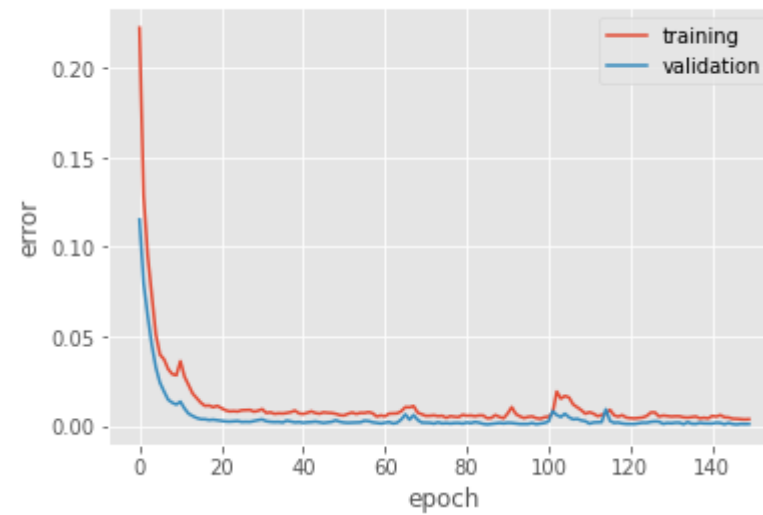
Bidirectional Dropout  
R2 for 2012-8



Bidirectional Dropout  
MSE for 2012-11

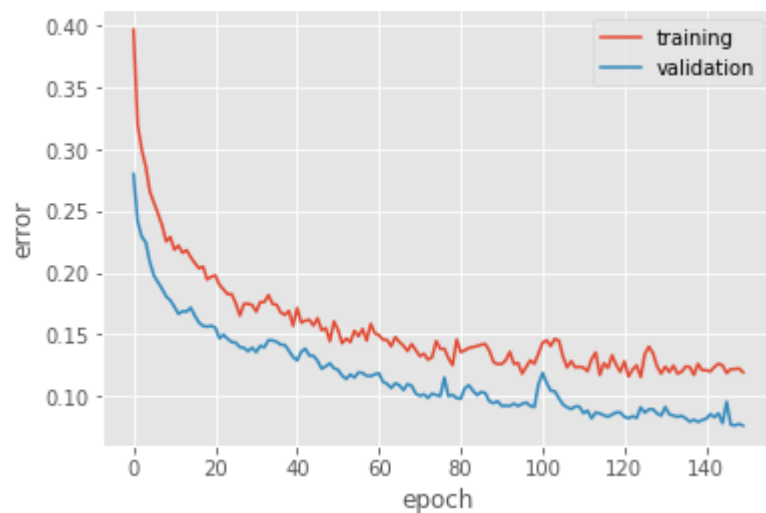


Bidirectional Dropout  
MSE for 2012-11

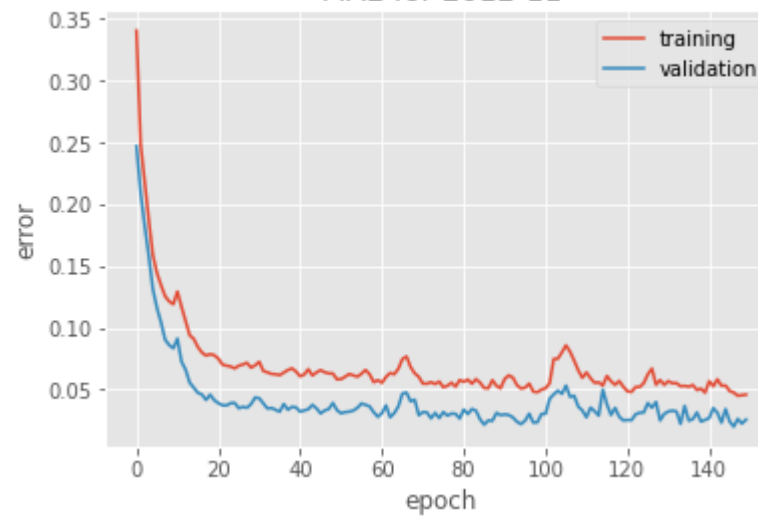




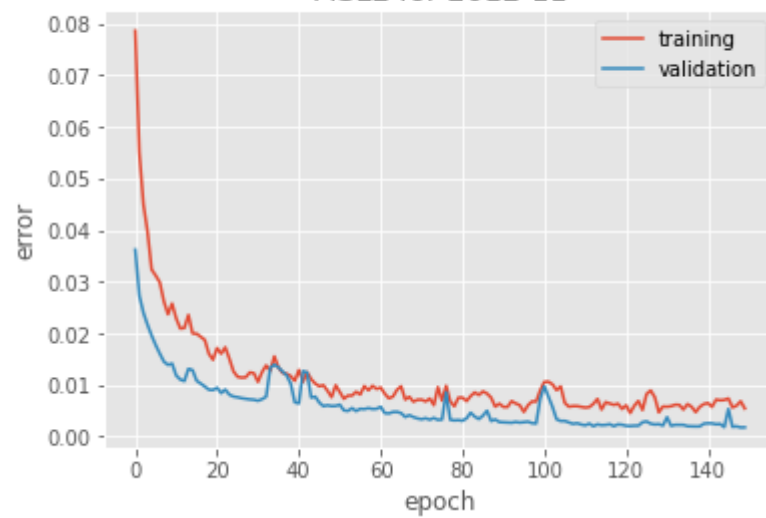
Bidirectional Dropout  
MAE for 2012-11



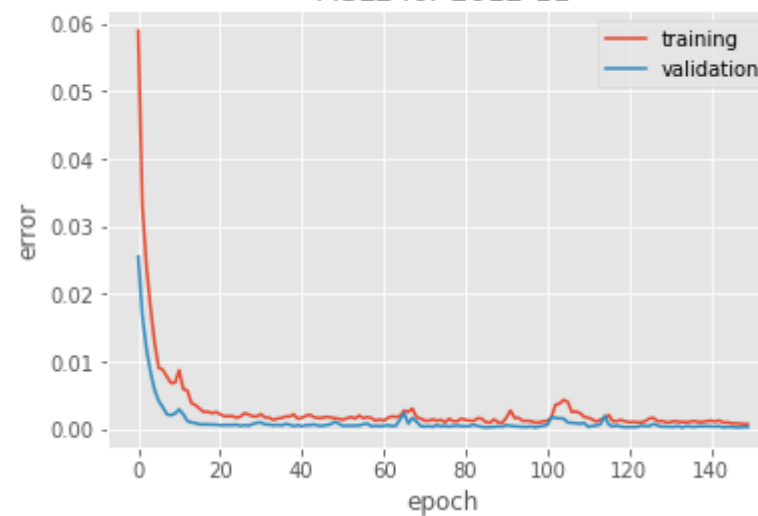
Bidirectional Dropout  
MAE for 2012-11



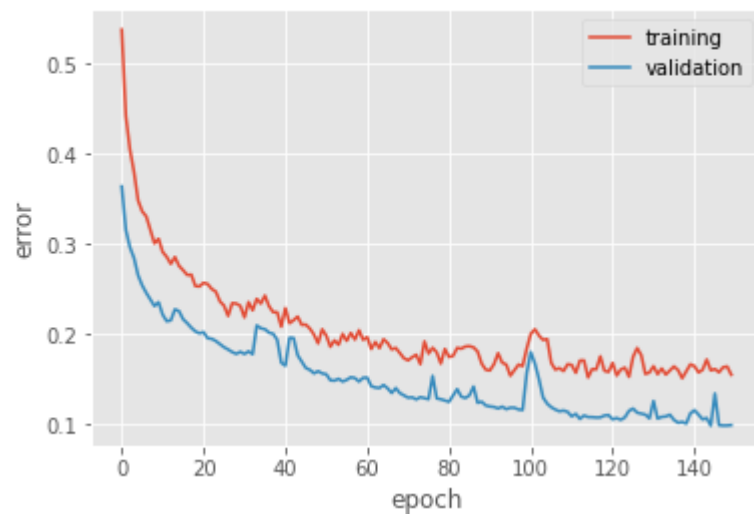
Bidirectional Dropout  
MSLE for 2012-11



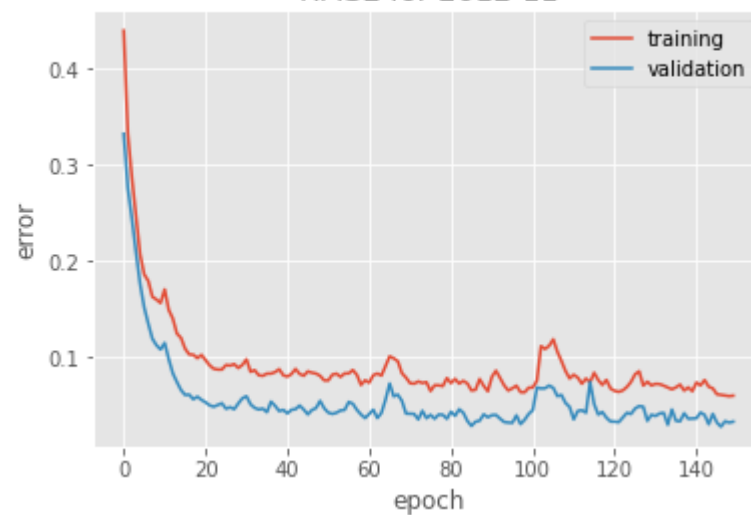
Bidirectional Dropout  
MSLE for 2012-11



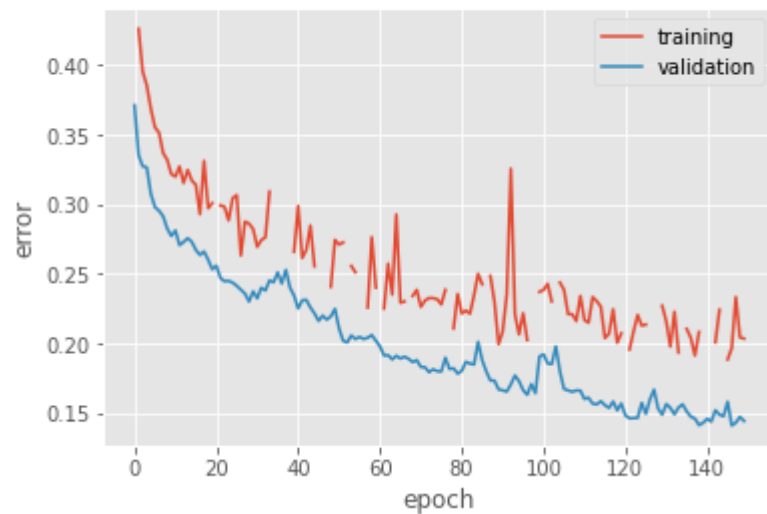
Bidirectional Dropout  
RMSE for 2012-11



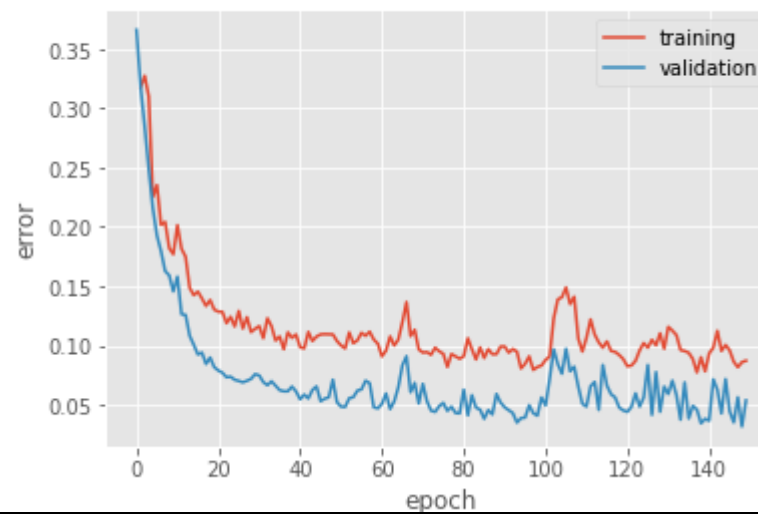
Bidirectional Dropout  
RMSE for 2012-11



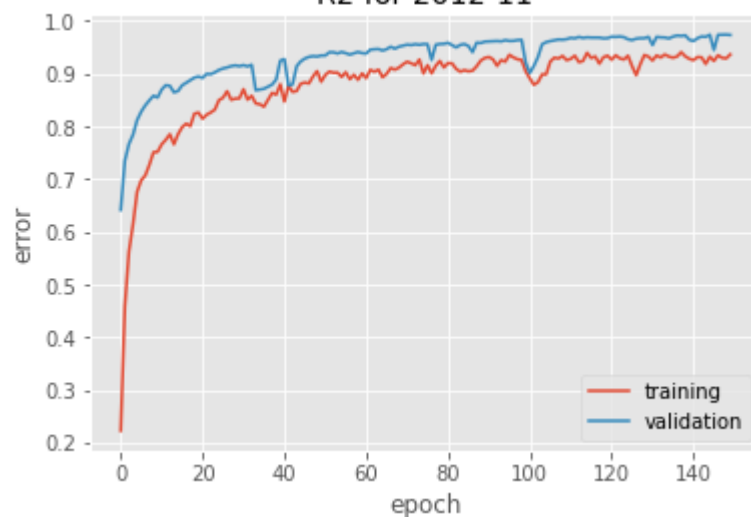
Bidirectional Dropout  
RMSLE for 2012-11



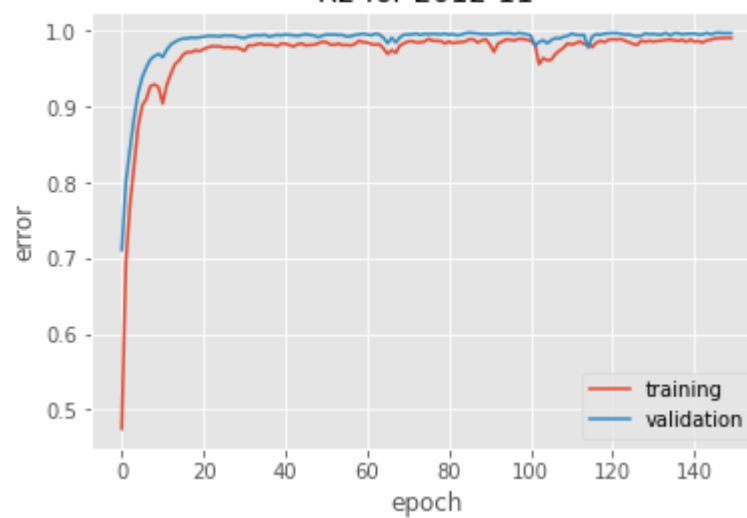
Bidirectional Dropout  
RMSLE for 2012-11



Bidirectional Dropout  
R2 for 2012-11

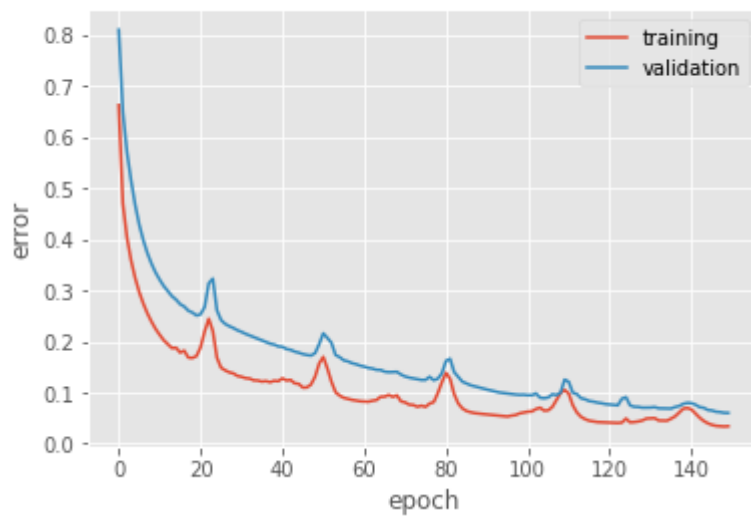


Bidirectional Dropout  
R2 for 2012-11

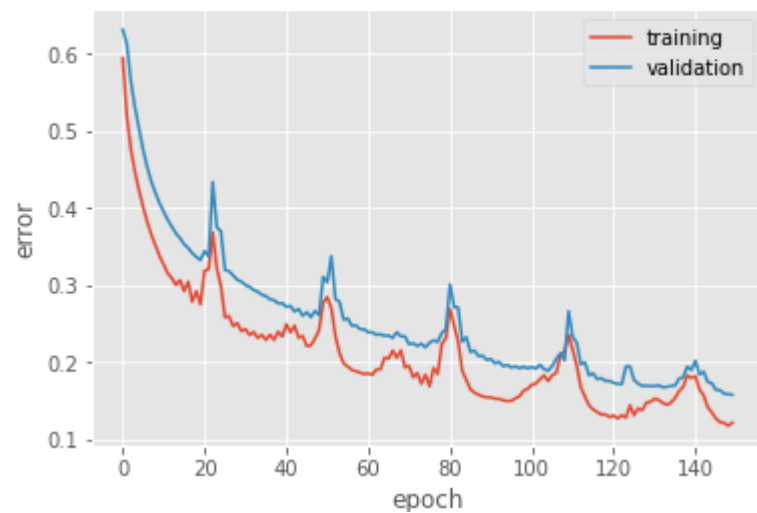


Bidirectional

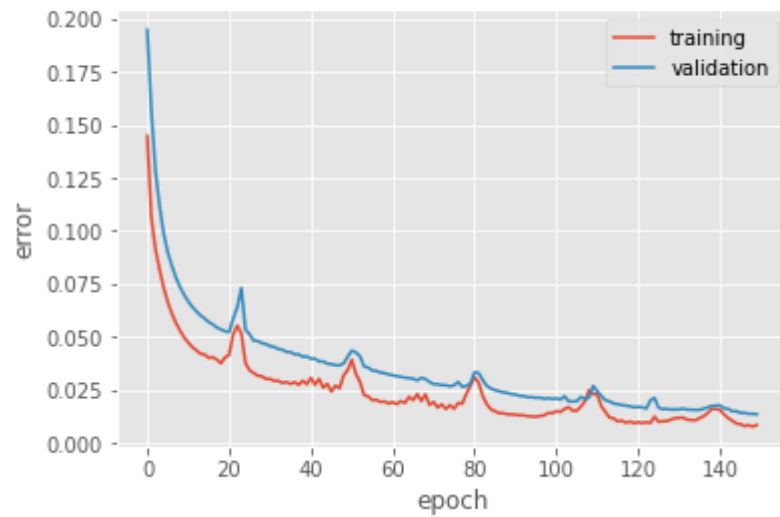
Bidirectional  
MSE for 2011-2



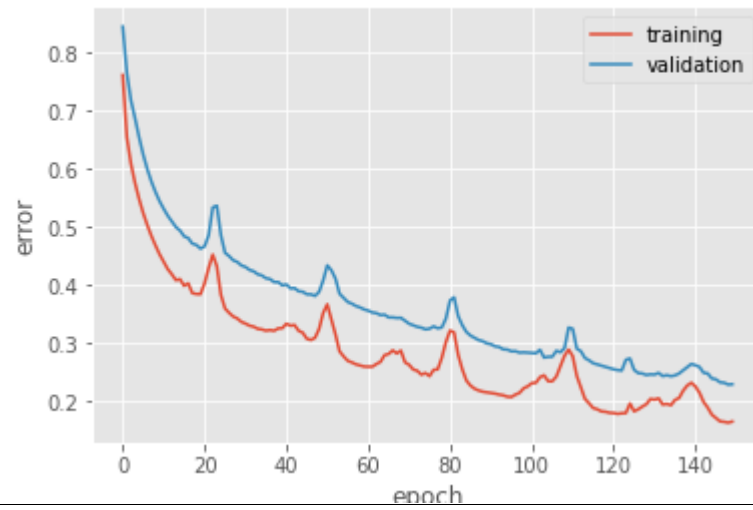
Bidirectional  
MAE for 2011-2



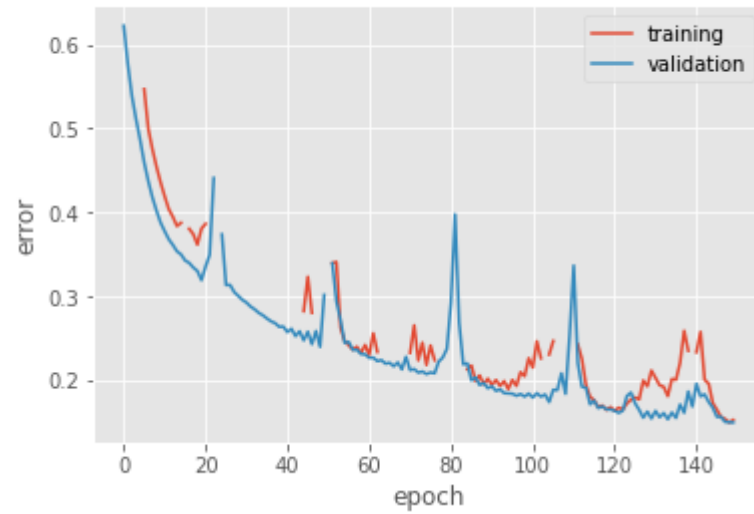
Bidirectional  
MSLE for 2011-2



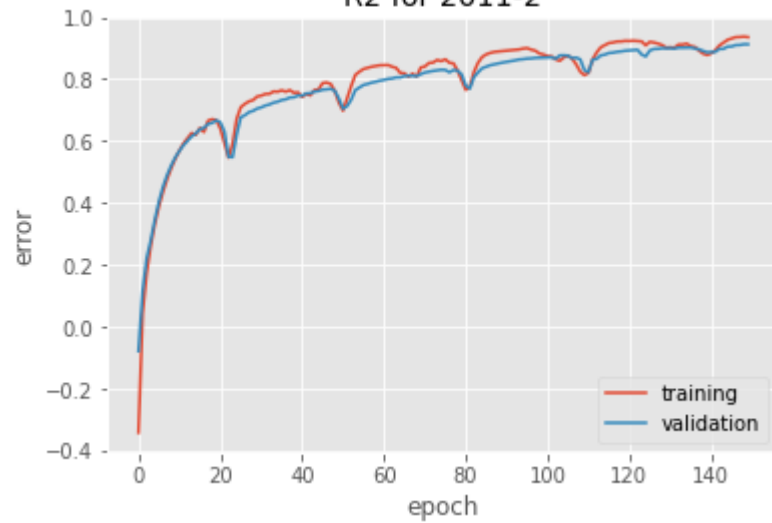
Bidirectional  
RMSE for 2011-2



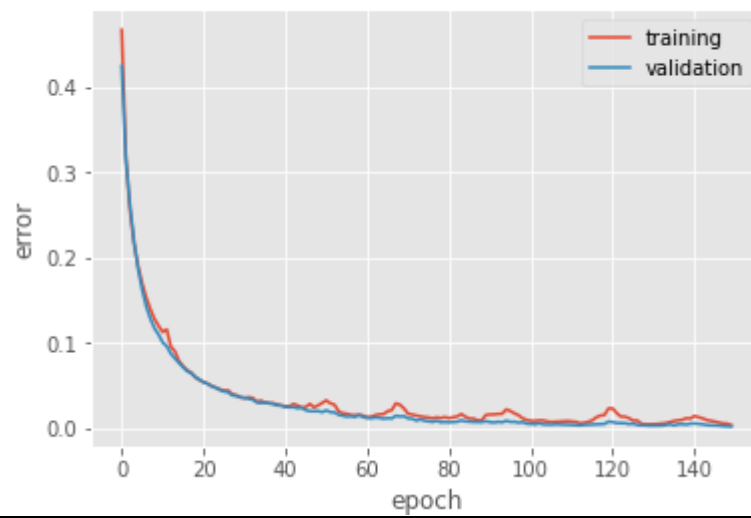
Bidirectional  
RMSLE for 2011-2



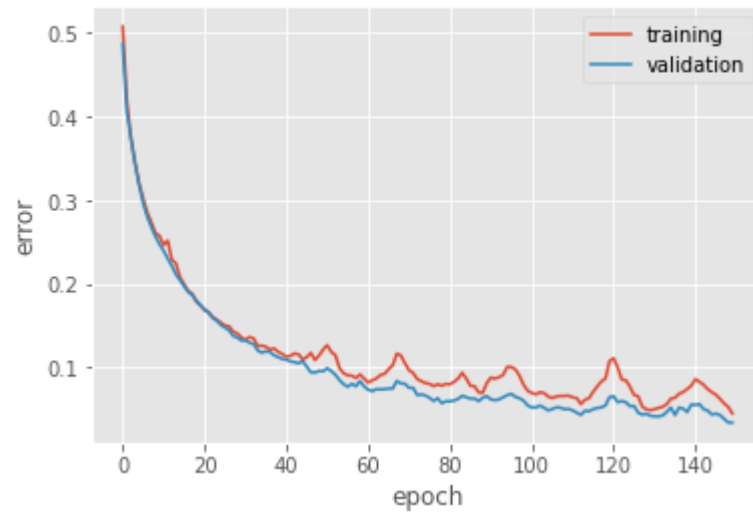
Bidirectional  
R2 for 2011-2



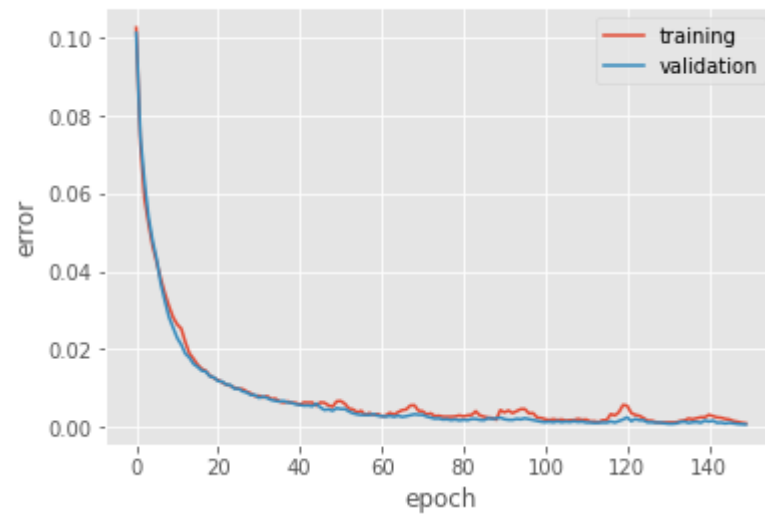
Bidirectional  
MSE for 2011-12



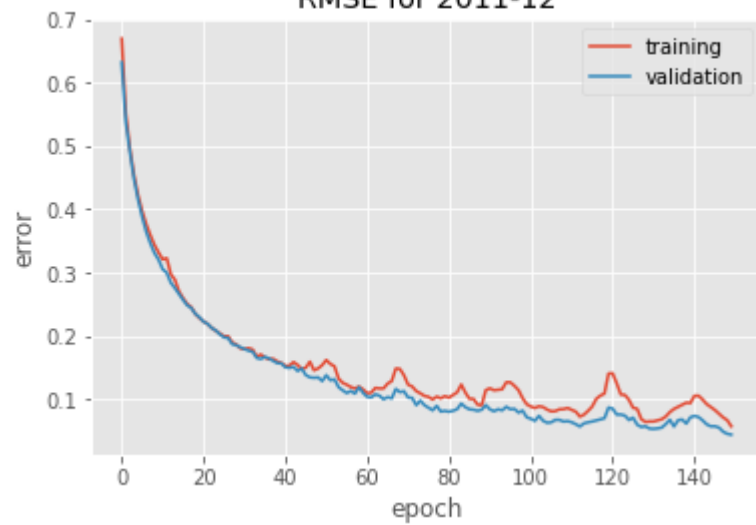
Bidirectional  
MAE for 2011-12



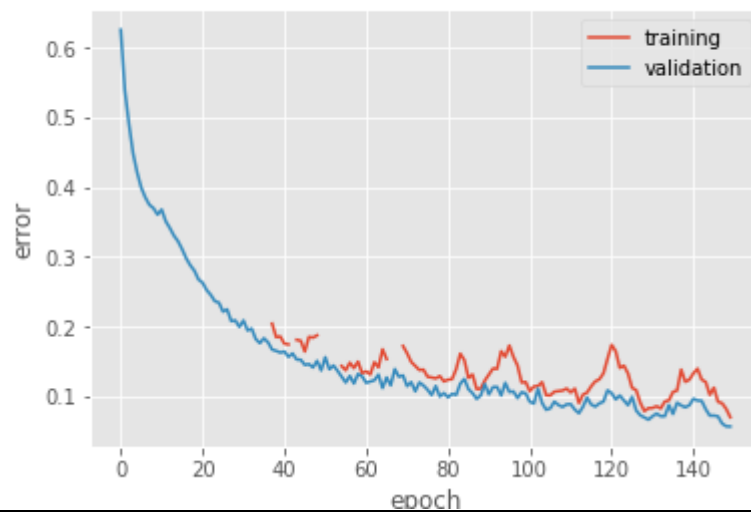
Bidirectional  
MSLE for 2011-12



Bidirectional  
RMSE for 2011-12

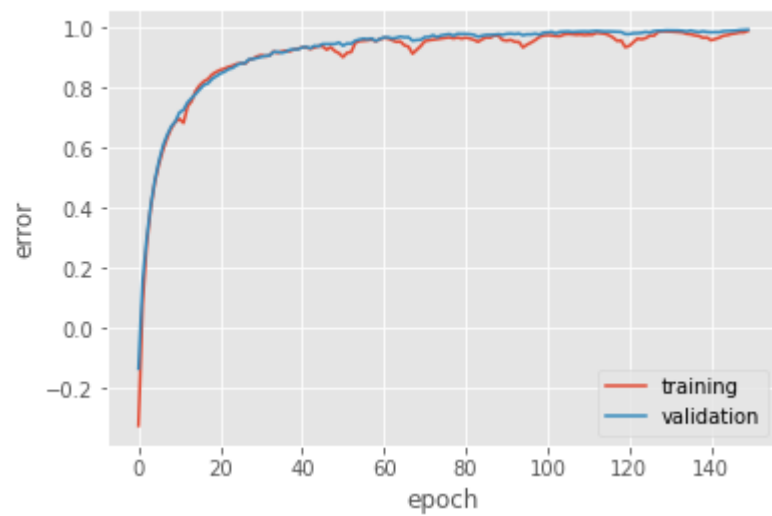


Bidirectional  
RMSLE for 2011-12



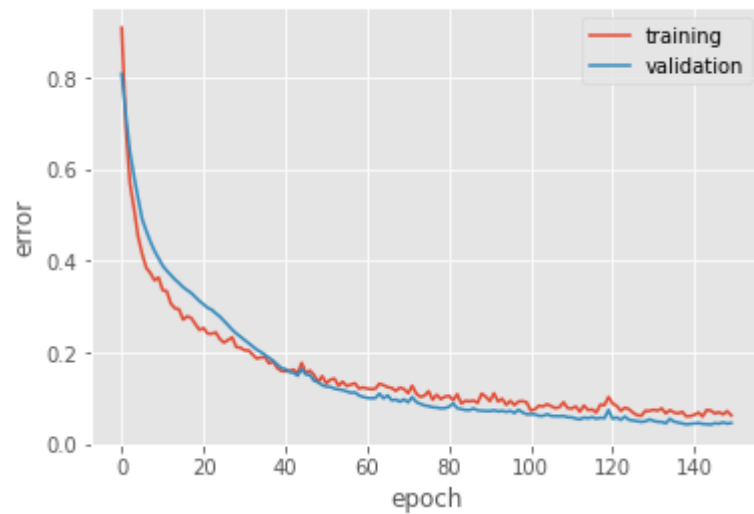


Bidirectional  
R2 for 2011-12

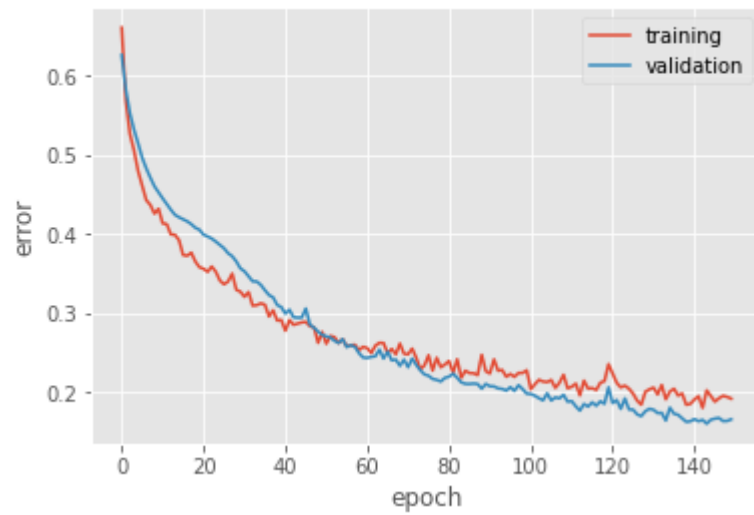


Dropout

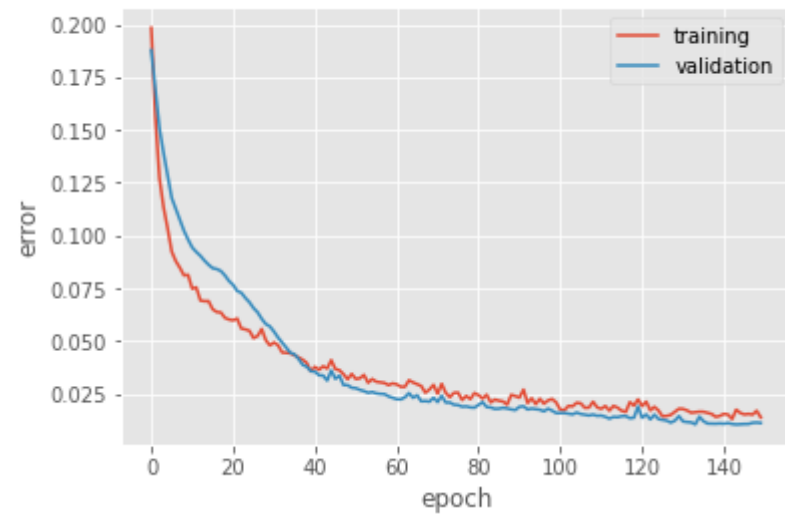
Dropout  
MSE for 2011-3



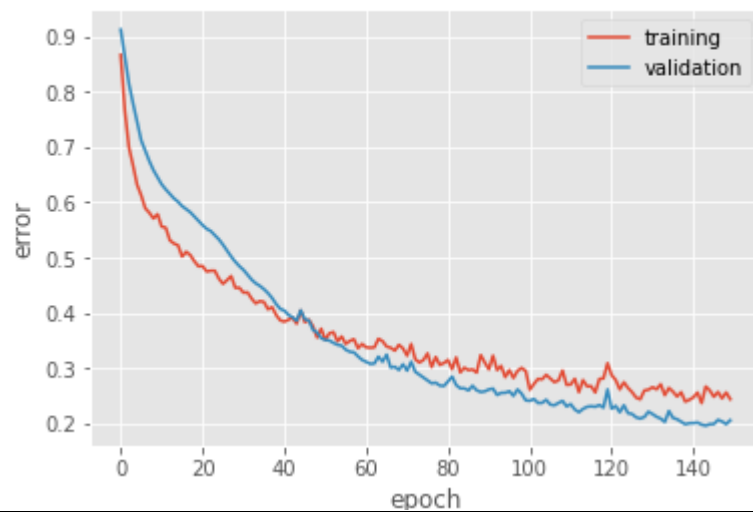
Dropout  
MAE for 2011-3



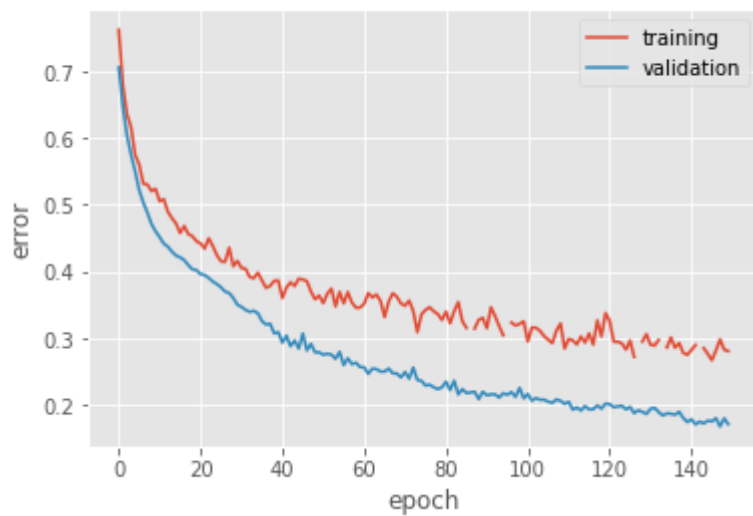
Dropout  
MSLE for 2011-3



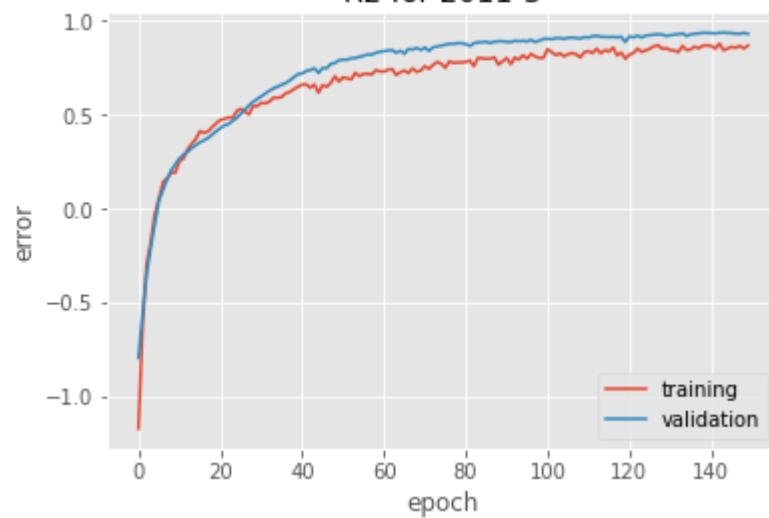
Dropout  
RMSE for 2011-3



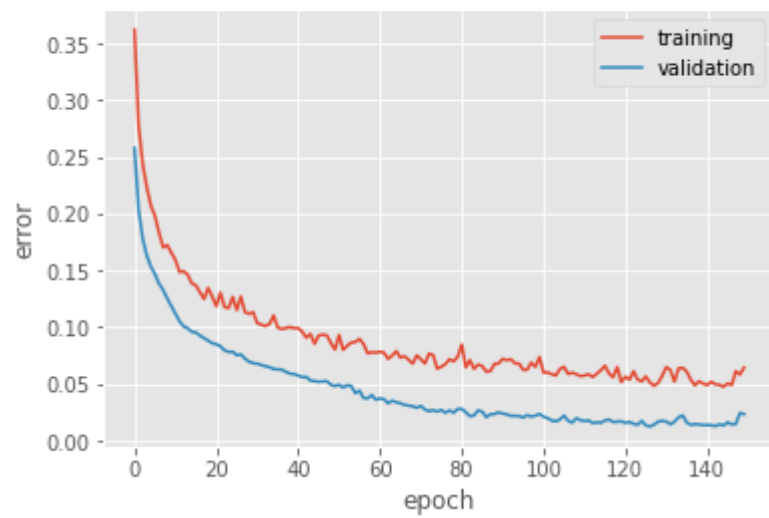
Dropout  
RMSLE for 2011-3



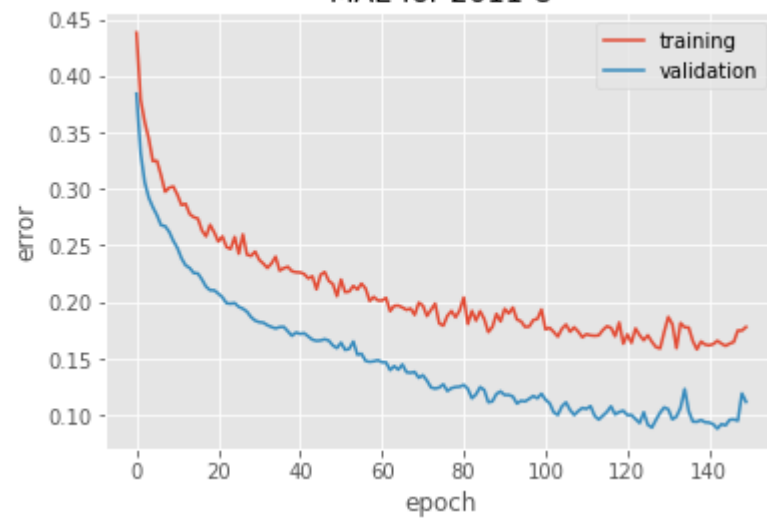
Dropout  
R2 for 2011-3



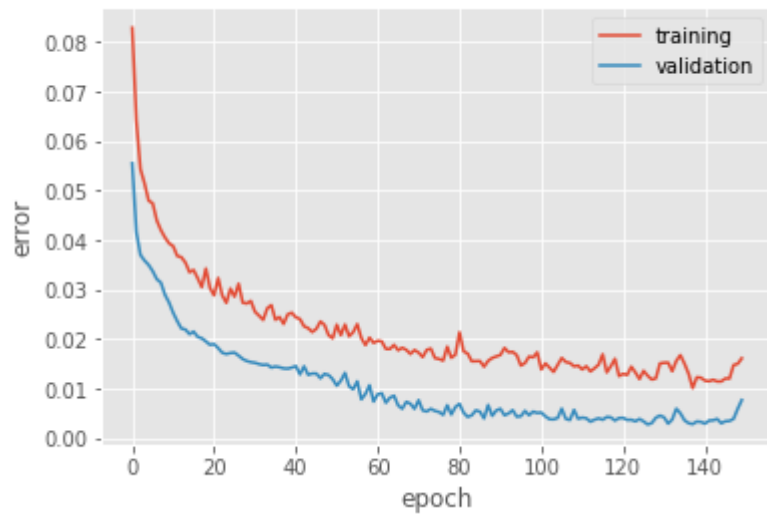
Dropout  
MSE for 2011-8



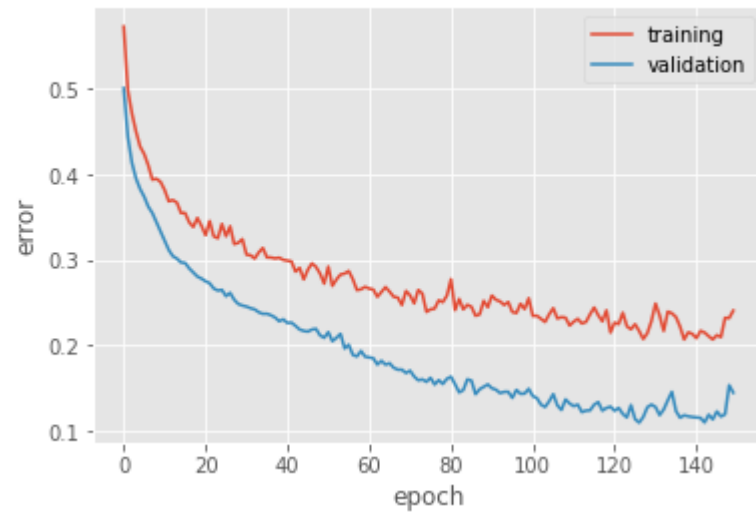
Dropout  
MAE for 2011-8



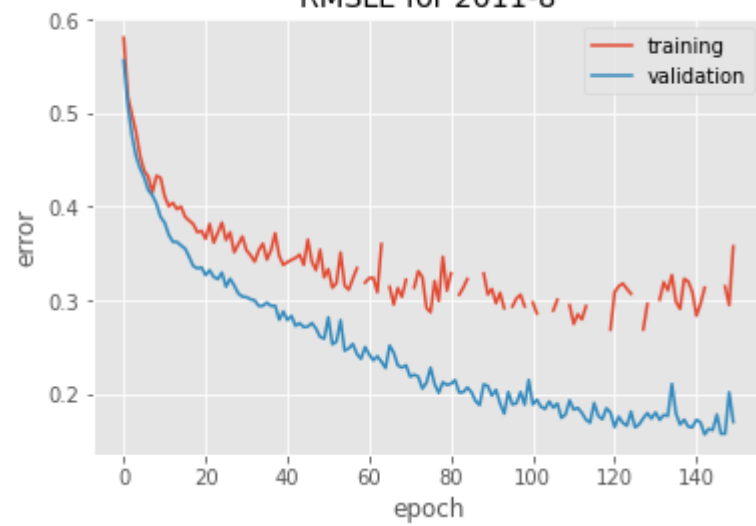
Dropout  
MSLE for 2011-8



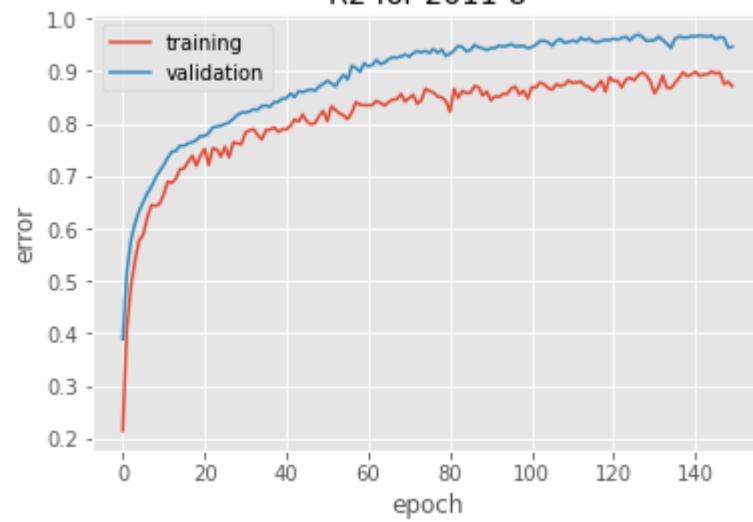
Dropout  
RMSE for 2011-8



Dropout  
RMSLE for 2011-8



Dropout  
R2 for 2011-8



## LATE SUBMISSIONS

n\_past = 24 UNITS = 50

Submission and Description	Private Score
<a href="#">submission_Bidirectional.csv</a>	1.53835
<a href="#">submission_Bidirectional Dropout.csv</a>	1.49210

n\_past = 12 UNITS = 50

<a href="#">submission_Bidirectional.csv</a>	1.56224
<a href="#">submission_Bidirectional Dropout.csv</a>	1.48797
<a href="#">submission_Dropout.csv</a>	1.42280



**n\_past = 12 UNITS = 10**

<a href="#">submission_Bidirectional.csv</a>	1.58528
<a href="#">submission_Bidirectional Dropout.csv</a>	1.40243
<a href="#">submission_Dropout.csv</a>	1.37222

**n\_past = 12 UNITS = 100**

<a href="#">submission_Bidirectional Dropout.csv</a>	1.54456
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## CONCLUSIONS

If n\_past = 24 => more jagged curves, many “bumps” and “valleys”

If n\_past = 12 => less jagged curves, fewer “bumps” and “valleys”

Models without “Bidirectional” and with “Dropout” seemed to be less jagged, and seemed to perform better.

Models with less units seemed to perform better.

Models with higher number of units took way longer to train.

Gaps in RMSLE plot are caused by linear activation function (default in keras if not specified), which can have positive and negative values (we can log only positive values). A much better alternative is RELU activation function.

Use MinMaxScaler instead of RoboustScaler. RoboustScaler caused forecast plot to have a minimal value other than 0 (like 100, 150, 220). This make the plot look bad and gave inaccurate predictions.

Conclusions from notebook 003a: train\_X dataset was used to train the models instead of trainX. This was the cause of no curve convergence.