

A Deep Learning Framework for Fine Grained Air Quality Prediction

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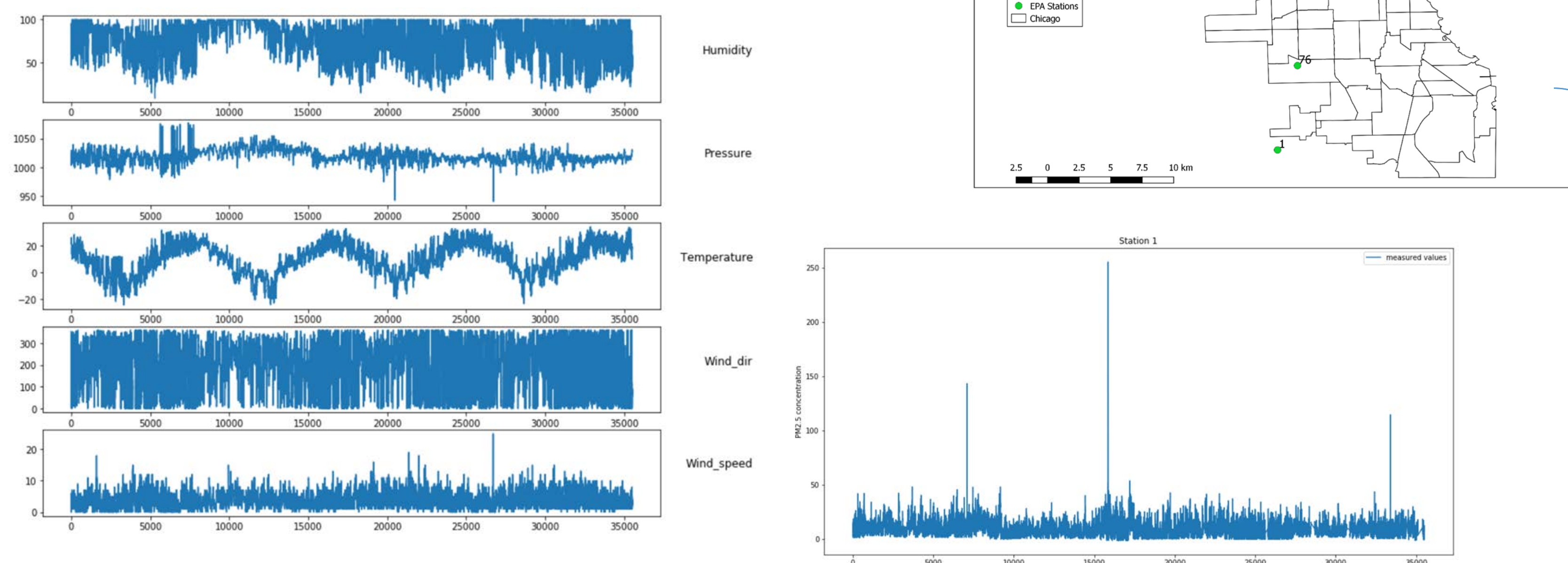
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Objective

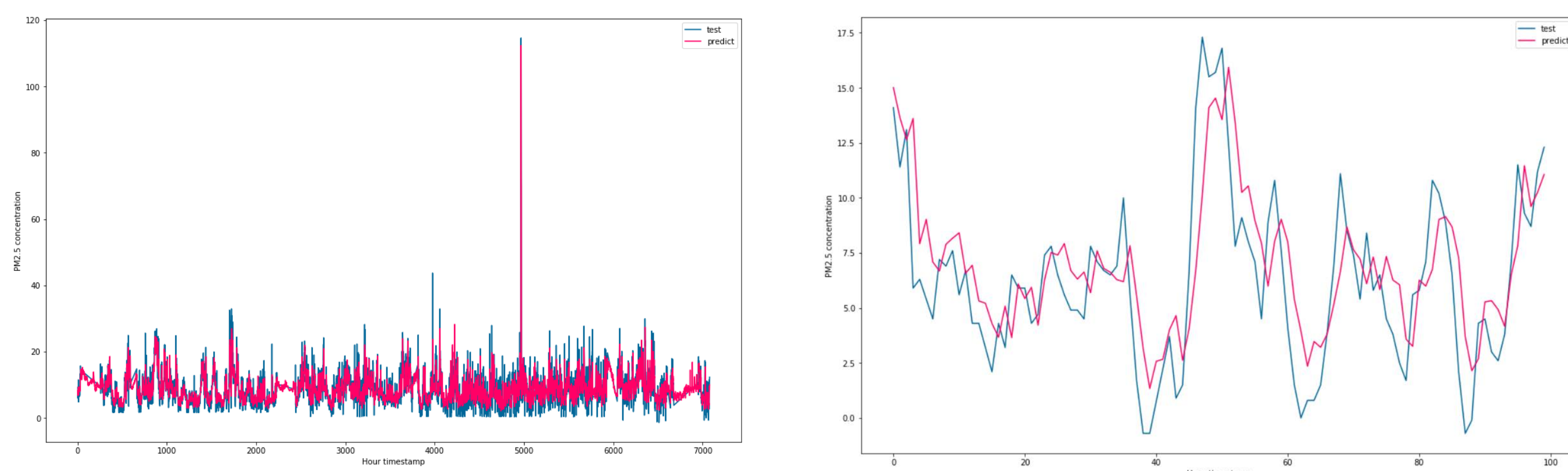
- A deep learning framework to generate fine spatial and temporal predictions of air quality, which could be used for population exposure studies.

Data

- EPA PM2.5 monitoring data
- Meteorological data



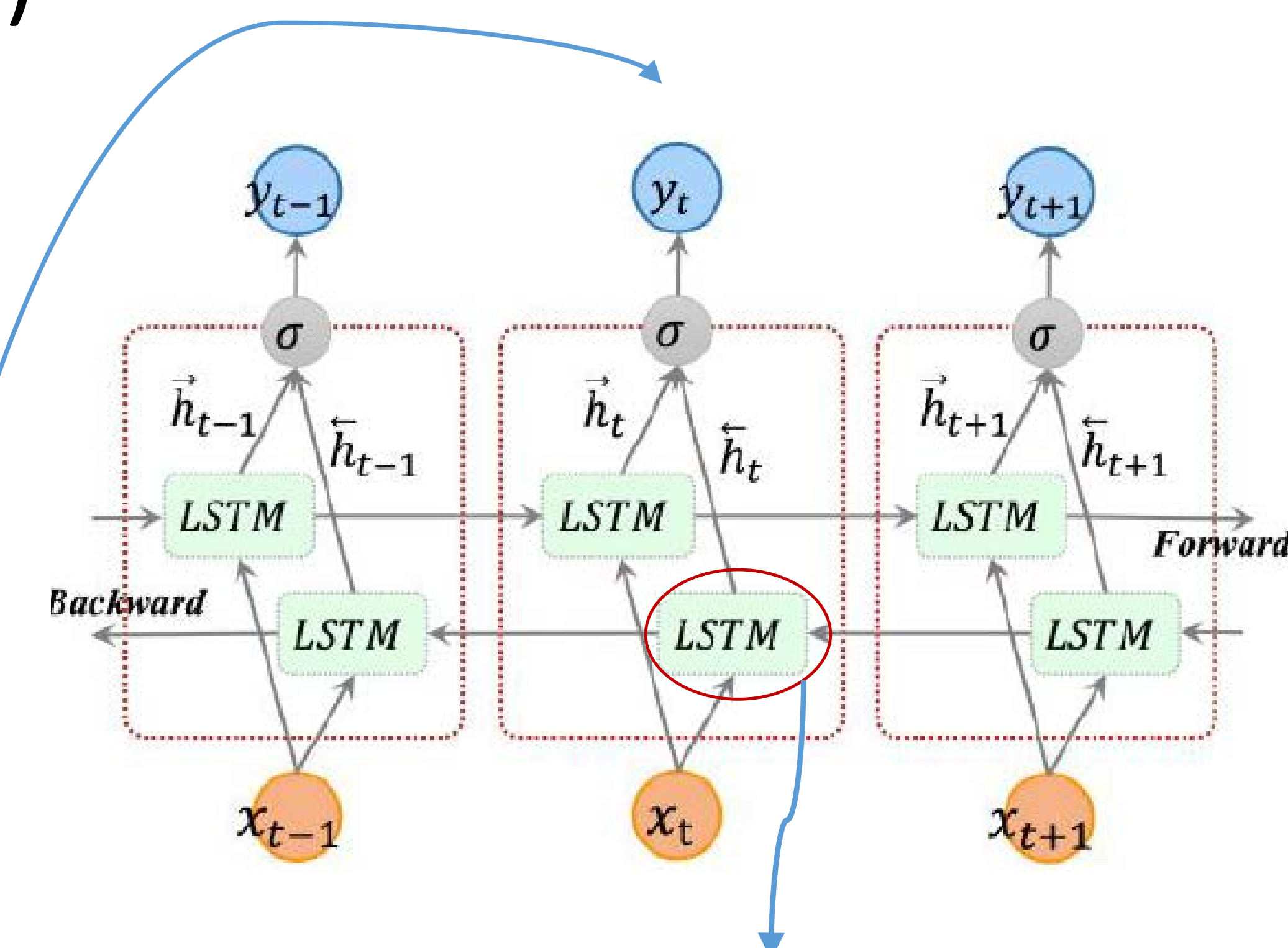
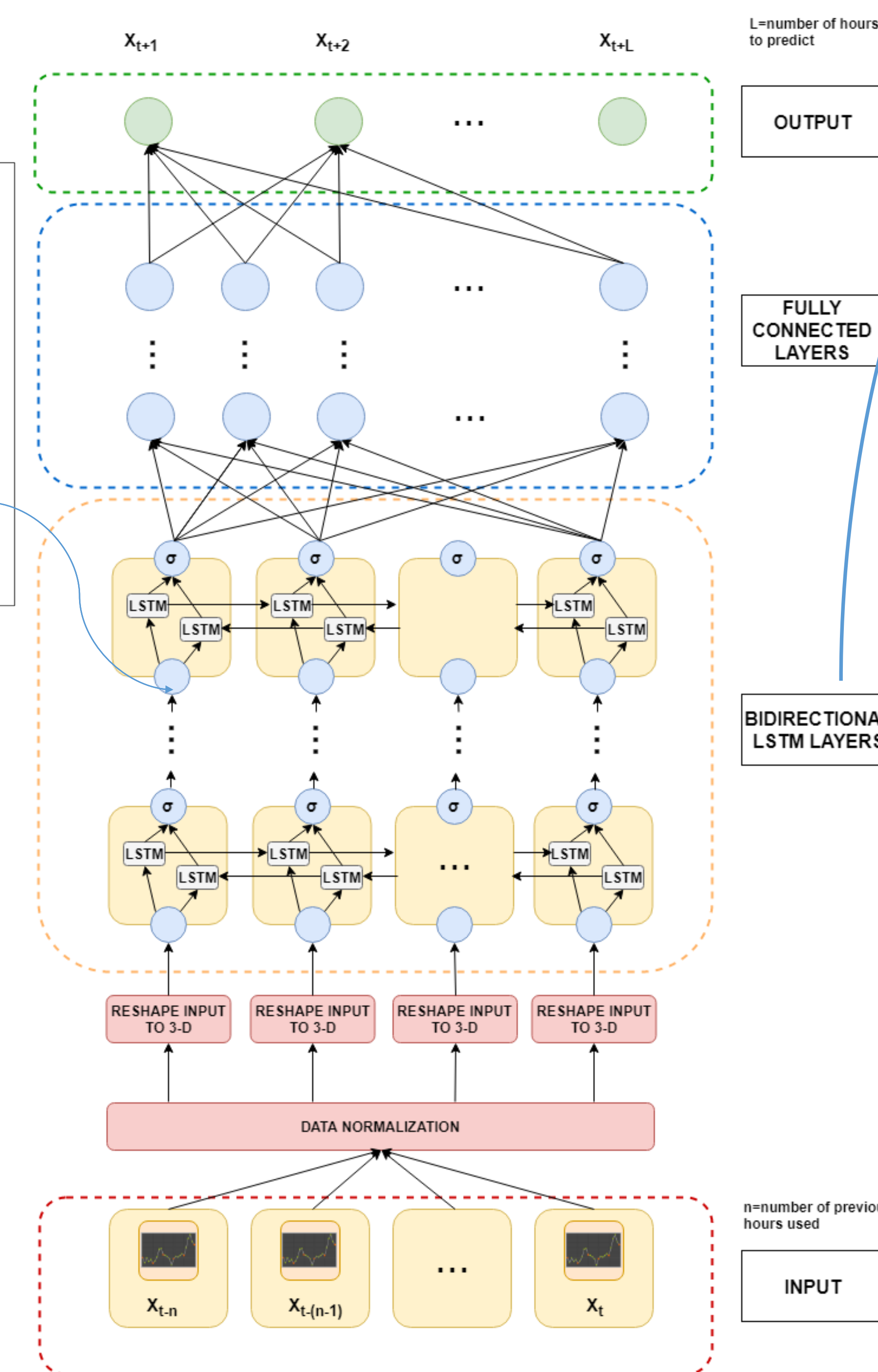
Experimental Results



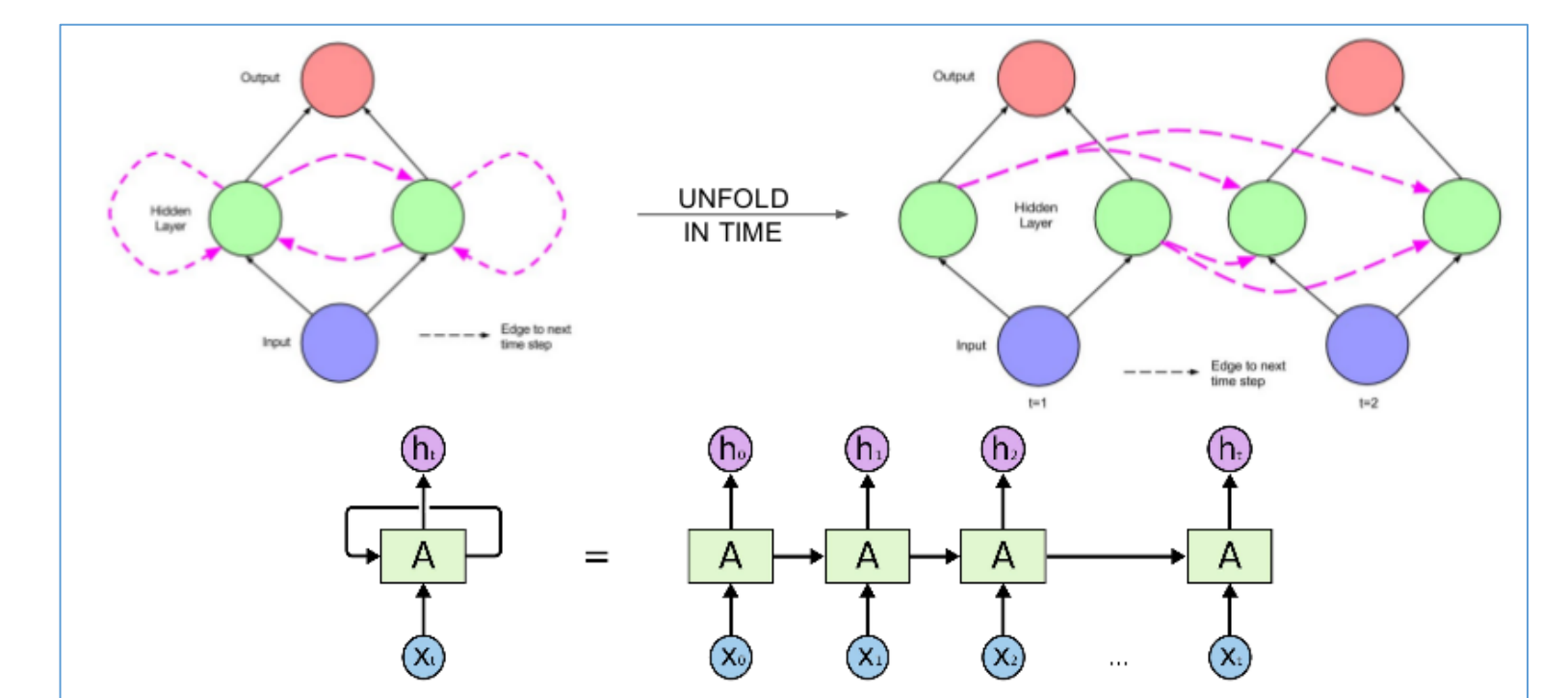
Best RMSE				
	Station 1	Station 76	Station 57	Station 6005
RMSE	2.964	3.398	4.009	3.291

Methodology:

Deep Bidirectional Long Short-Time Memory Neural Network (DBLSTM)



Long Short-Time Memory (LSTM)



Evaluation

	Best RMSE			
	Station 1	Station 76	Station 57	Station 6005
DBLSTM	2.964	3.398	4.009	3.291
LSTM	3.131	3.617	4.1	3.342
MLP	3.043	3.603	4.002	3.313
GRNN	5.126	6.534	6.553	5.616
Persistence	4.083	4.118	4.341	3.928