1. **Spatio-temporal Graph Convolutional Network: A Deep Learning Framework for Traffic Forecasting-IJCAI 2018**

Due to the nonlinearity and complexity of traffic flow, traditional methods cannot satisfy the requirement of mid-and-long term prediction tasks and often neglect spatial and temporal dependencies.

Based on the length of prediction, traffic forecast is generally classified into short-term (5-30 mins) and long-term prediction (over 30 mins).

The methodologies on traffic prediction can be classified into two categories: dynamical modelling and data-driven methods.

Classic statistical and machine learning models are two major representatives of data-driven approaches. ARIMA-based models are limited by the stationary assumption of time sequences. Recently, classic statistical models have been vigorously challenged by machine learning methods of traffic prediction tasks.

Deep learning approaches:

To take full advantage of spatial features, some researchers use convolutional neural network (CNN) to capture adjacent relations among the traffic network, along with employing recurrent neural network (RNN).

Wu and Tan presented a feature-level fused architecture CLTFP for short-term forecast.

Afterwards, Shi et al. proposed the convolutional LSTM.

RNN-based networks are widely known to be difficult to train and computationally heavy.

Above all, we proposed a novel deep learning architecture, the spatio-temporal convolutional networks. This architecture comprises several spatio-temporal convolutional blocks, which are a combination of graph convolutional layers and convolutional sequence learning layers, to model spatial and temporal dependencies.