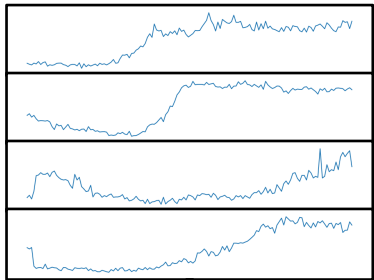


## Raw data



## ① Missing Pattern Construction

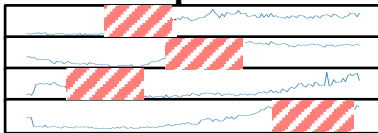
**Missing Type :**  
SR-TR, SR-TC SC-TR, SC-TC

+

**Missing Rate :**  
10%, 30%, 50% 70%, 90%



### Incomplete Data



## ② Data Pre-processing

Sliding-window



Uniform Format



0-initialize Missing Data



Normalization

## ③ Model Construction

**ST Modeling Technologies:**  
RNN, Attention, GNN, TC

+

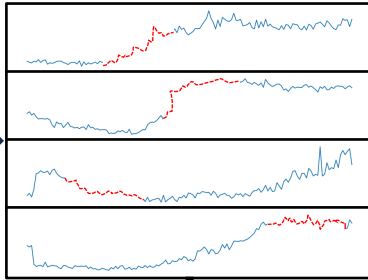
**Model Types:**  
Predictive / Generative

+

**Train Strategies:**  
Masked / Reconstruction SSL

Loss Design

## Imputation



④ Performance Evaluation: Effectiveness, Efficiency, Difficult and simple intervals