Generate the next few frames in a video using graph neural networks.

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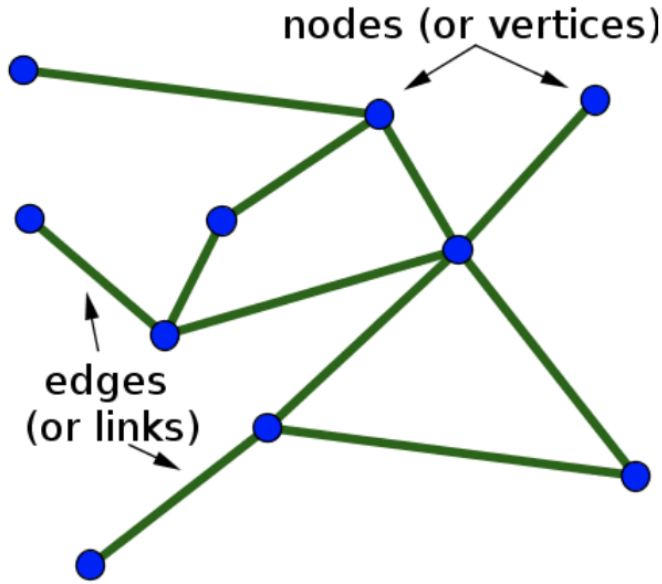
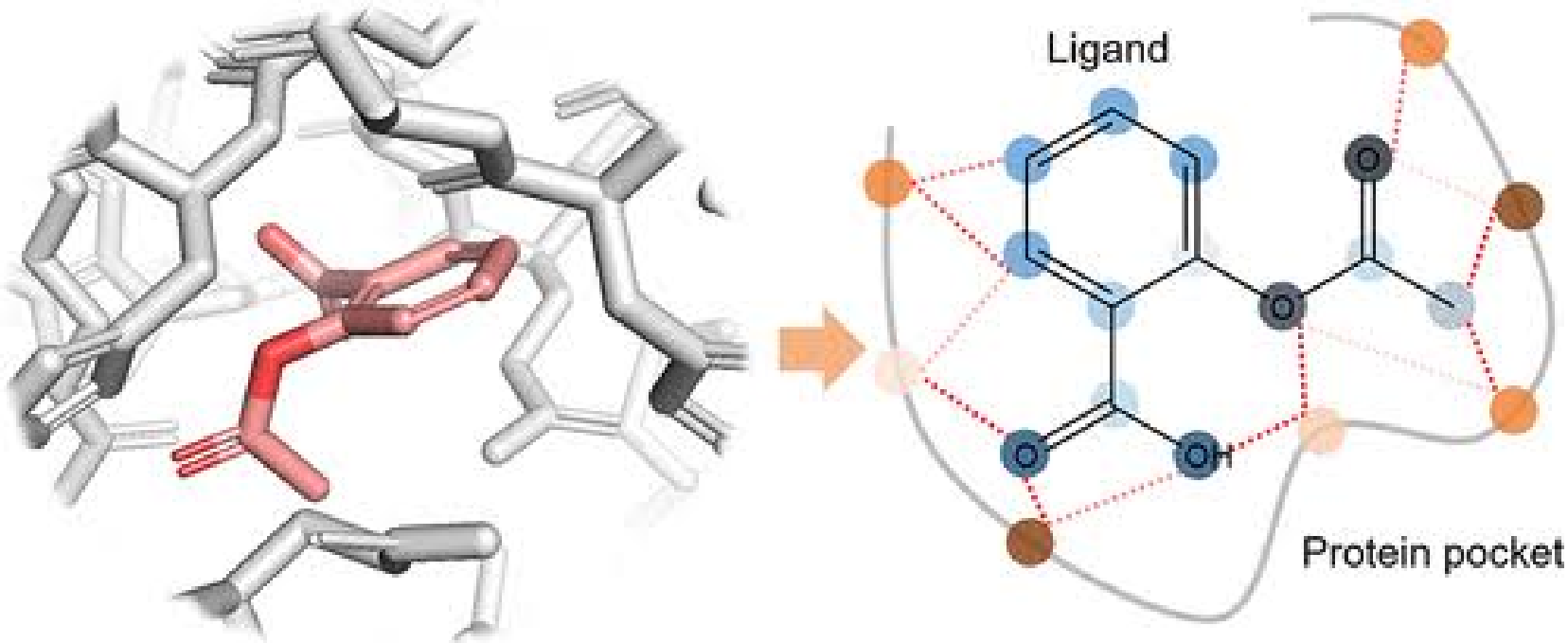
Goal

- To predict the next few frames of the video using a Graph Neural Network for spatio-temporal graphs.
- To know about the nodes a few frames later.


nodes (or vertices)
edges
(or links)


Ligand
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Protein pocket

How to proceed?

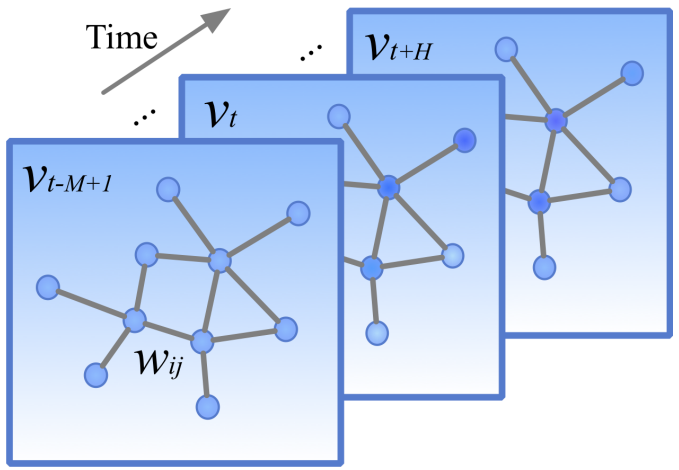
- An image can be represented as graphs by dividing the image into regions and the neighboring regions, which are interconnected.
- The video consists of multiple frames. Using the above methods, the frame can be converted into a graph.
- The multiple frames add the temporal aspect to the graph. Hence, the graph generated from the number of frames is a spatio-temporal graph.

- Since there are large amount of video data are captured, so Video summarizing used to condenses the original video into a short summary while preserving the main content.
- Lots of video summarizing approaches have been proposed but, fully convolutional structure on time axis approach have gained significantly.
- Forecasting traffic speed, volume or the density of roads in traffic networks is fundamentally important in a smart transportation system. We can address the traffic prediction problem by using STGNNs.

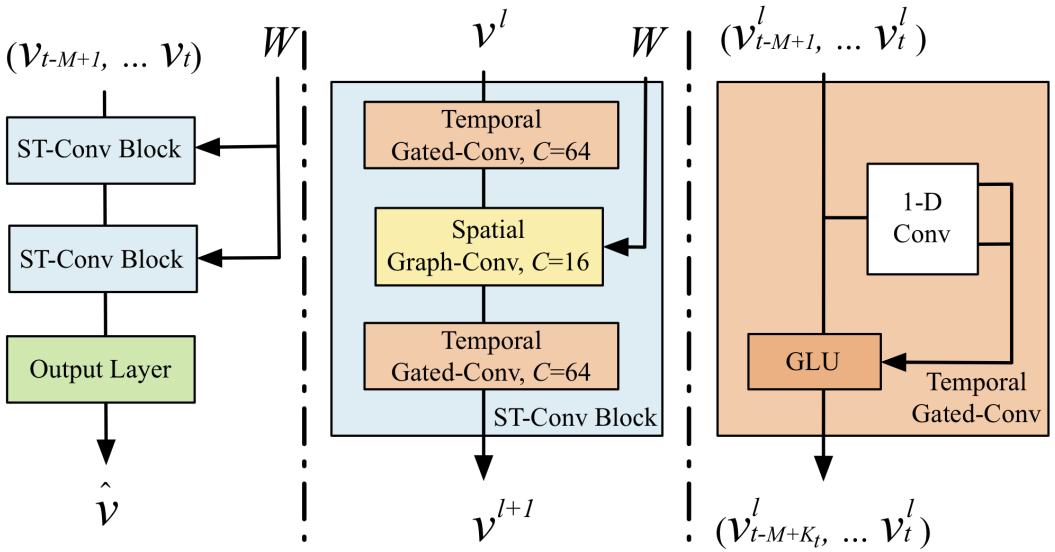
Relevent Papers

1. Bing Yu, Haoteng Yin, Zhanxing Zhu. Spatio -Temporal Graph Convolutional Networks: A Deep Learning Framework for Traffic Forecasting. 10.24963/ijcai.2018/505.
2. Bin Zhao, Haopeng Li, Xiaoqiang Lu, Xuelong Li. Reconstructive Sequence-Graph Network for Video Summarization. 10.1109/TPAMI.2021.3072117.
3. Rucha Bhalchandra Joshi, Subhankar Mishra. Learning Graph Representations.

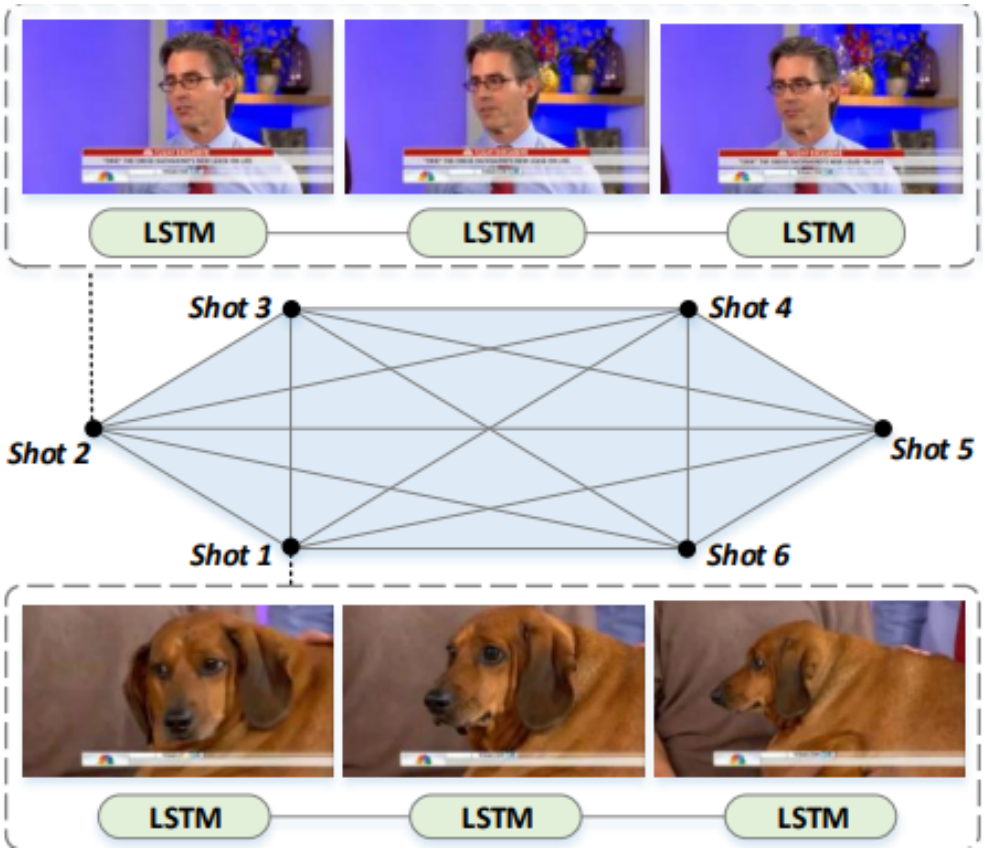
Spatio -Temporal Graph Convolutional Networks: A Deep Learning Framework for Traffic Forecasting[1].



Spatio -Temporal Graph Convolutional Networks: A Deep Learning Framework for Traffic Forecasting[1].



Reconstructive Sequence-Graph Network for Video Summarization[2].



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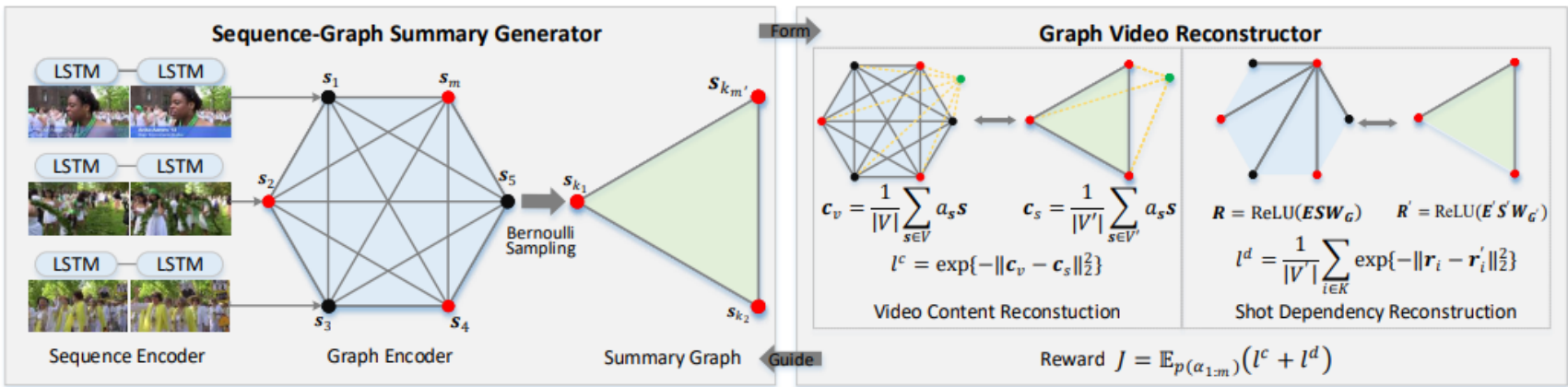

Thank You.