1. Data processing

For each aggregated time point t, construct a graph

A math equation with a square and a few letters

Description automatically generated with medium confidence

Nodes: sensors in different locations (all belong to LA traffic measurement system)

Edges: connect each nodes based on the distance between sensors

Adjacency matrix

A close up of a number

Description automatically generated

A 1 is used if the nodes are more than a certain threshold distance away, a 0 is used otherwise. A self-loop is also added for every node.

Squaring the distance can be seen as a way to emphasize larger distances; as the distance increases, the squared distance increases even more rapidly.

This is a simplified form of the Gaussian formula, where mu (the mean) is assumed to be 0, which makes sense in the context of distances from a node to itself.

Overall, every timestamp t, there is a knowledge graph object

1. Building model
2. Train
3. verification