“Data Availability” statement for the data：

Select three road segments throughout Nanming District of Guiyang in Guizhou province as the research object.

The spatial location and information of the road segments are as shown in table 1. For each of the 3 selected segments, the traffic speed (vehicle average speed of each segment) data from 2011-04-11 and 2011-05-10 month-long were collected by coil detector and microwave detector. These 30-s raw data are then aggregated into 5-min periods. Besides detector data, the incident data which was recorded after incident was also collected from traffic management department. Then three time units of traffic data are taken as the input of the neural network, and the next time unit is taken as the future traffic data to make predictions. Stating in simpler words, take 7:15, 7:20 and 7:25 time point as input units, including 20 raw data points from 7:15 to 7:25, to predict the traffic data at 7:30. We further aggregate the data into 15 minutes periods as a set of training samples. Then we get 3 data sets with 86400 groups of sample data for each road segments, the first 20 days of data as the training data, the last 10 days of data as the test data. Therefore the original data matrix dimension is 57600×3, 28800×3, respectively.

Table 1. The spatial location and information of the road segments

Number	Target	Down-stream	Up-stream
1	WQ-YA-(ZH-N)	YL-WQ-(ZH-N)	YA-WC-(ZH-N)
2	WC-YY-(ZS)	SX-WC-(ZS)	YY-BS-(ZS)
3	YA-ZS-(HS)	WQ-YA-(HS)	ZS-ZH-(HS)