Conditional Probablity Values - A Novel Context-Based Approach of Identifying Congestion Detection

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The following tables contains the conditional probability values of each node given its parents (if the node is child of another node). The values in tables are used for identifying traffic congestion considering context.

TABLE I: Prior probability of node Weather

Weather	Probability
Good	0.9
Bad	0.1

TABLE II: Prior probability of node Day

Day	Probability
True	0.7
False	0.3

TABLE III: Prior probability of node Time

Time	Probability
Peak	0.35
Normal	0.65

TABLE IV: Conditional probability of node Day Time given its parents

Day	Time	Day Time	Probability
True	Peak	Peak	0.95
	Normal	Peak	0.7
	Peak	Normal	0.05
	Normal	Normal	0.3
False	Peak	Peak	0.85
	Normal	Peak	0.1
	Peak	Normal	0.15
	Normal	Normal	0.9

TABLE V: Prior probability of node Special event

Special event	Probability
Yes	0.1
No	0.9

TABLE VI: Prior probability of node Presence of obstacles

Presence of obstacles	Probability
Yes	0.3
No	0.7

TABLE VII: Conditional probability of node Vehicle Density given its parents

Vehicle Density/State	Congested	NonCongested
High	0.8	0.1
Mid	0.19	0.4
Low	0.01	0.5

TABLE VIII: Conditional probability of node Driver activity given its parents

Driver activity/State	Congested	NonCongested
Normal	0.2	0.92
AbNormal	0.8	0.08

TABLE IX: Conditional probability of node Speed given its parents

Speed/State	Congested	NonCongested
High	0.01	0.55
Mid	0.14	0.35
Low	0.85	0.1

TABLE X: Conditional probability of node Eye movement given its parents

Eye Movement/Driver activity	Normal	AbNormal
High	0.95	0.01
Mid	0.05	0.99

TABLE XI: Conditional probability of node Head movement given its parents

Head Movement/Driver activity	Normal	AbNormal
High	0.95	0.04
Mid	0.05	0.96

TABLE XII: Conditional probability of hypothesis node "State" given its parents

Weather	Day Time	Presence of obstacles	Special events	Congested	Non Congested
Good	Peak	Yes	Yes	0.995	0.005
			No	0.99	0.01
		No	Yes	0.9	0.1
			No	0.8	0.2
	Normal	Yes	Yes	0.8	0.2
			No	0.45	0.55
		No	Yes	0.65	0.35
			No	0.1	0.9
Bad	Peak	Yes	Yes	0.997	0.003
			No	0.994	0.006
		No	Yes	0.96	0.04
			No	0.9	0.1
	Normal	Yes	Yes	0.85	0.15
			No	0.55	0.45
		No	Yes	0.69	0.31
			No	0.18	0.82