Contemporary Data Processing Technology (CCOD)

Lab 4 (September 29, 2016)

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In this work, it was necessary to create a set of 25 rules of all combination of {*speed = very slow, slow, medium, fast, very fast*} and {distance = very short, short, medium, long, very long} and logically brake.

Get de-fuzzified brake value for all combination of speed = 0, 5, 10, 15, 20 and distance = 0, 200, 400, 600, 800, 1000.

Show 25 rules, table of speed-distance-brake of 30 combination, and 30 points in 3D coordinate.

25 Rules

IF		AND		THEN	
IF	X=Very slow	AND	Y=very short	THEN	Z=weak
IF	X=Very slow	AND	Y=short	THEN	Z=weak
IF	X=Very slow	AND	Y=medium	THEN	Z=very weak
IF	X=Very slow	AND	Y=long	THEN	Z=very weak
IF	X=Very slow	AND	Y=very long	THEN	Z=very weak
IF	X=slow	AND	Y=very short	THEN	Z=medium
IF	X=slow	AND	Y=short	THEN	Z=weak
IF	X=slow	AND	Y=medium	THEN	Z=weak
IF	X=slow	AND	Y=long	THEN	Z=very weak
IF	X=slow	AND	Y=very long	THEN	Z=very weak
IF	X=medium	AND	Y=very short	THEN	Z=strong
IF	X=medium	AND	Y=short	THEN	Z=medium
IF	X=medium	AND	Y=medium	THEN	Z=weak
IF	X=medium	AND	Y=long	THEN	Z=very weak
IF	X=medium	AND	Y=very long	THEN	Z=very weak
IF	X=fast	AND	Y=very short	THEN	Z=very strong
IF	X=fast	AND	Y=short	THEN	Z=strong
IF	X=fast	AND	Y=medium	THEN	Z=medium
IF	X=fast	AND	Y=long	THEN	Z=weak
IF	X=fast	AND	Y=very long	THEN	Z=weak
IF	X=very fast	AND	Y=very short	THEN	Z=very strong
IF	X=very fast	AND	Y=short	THEN	Z=very strong
IF	X=very fast	AND	Y=medium	THEN	Z=strong
IF	X=very fast	AND	Y=long	THEN	Z=medium
IF	X=very fast	AND	Y=very long	THEN	Z=weak

Table de-fuzzified brake value for all combination of (speed = 0, 5, 10, 15, 20 and distance = 0, 200, 400, 600,800, 1000) => 30 combinations

x(Speed)	y(Distance)	z(Balance)
0	0	3,000
0	200	3,000
0	400	0,875
0	600	0,875
0	800	0,875
0	1000	0,875
5	0	4,063
5	200	3,000
5	400	2,286
5	600	0,875
5	800	0,875
5	1000	0,875
10	0	6,000
10	200	4,500
10	400	3,000
10	600	0,875
10	800	0,875
10	1000	0,875
15	0	8,636
15	200	7,125
15	400	4,938
15	600	3,235
15	800	3,000
15	1000	3,000
20	0	8,636
20	200	8,636
20	400	6,000
20	600	4,500
20	800	3,000
20	1000	3,000

30 points in 3D coordinate

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