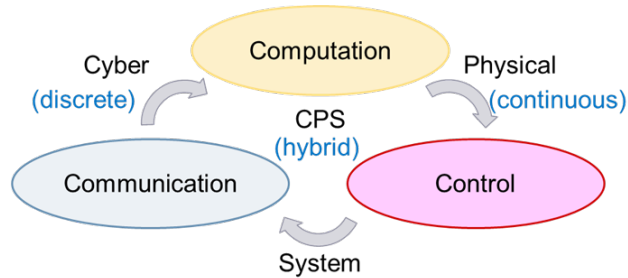


Design and Multiobjective Optimization of Efficient Vehicle Management Framework for Cyber-Physical Intelligent Transport System

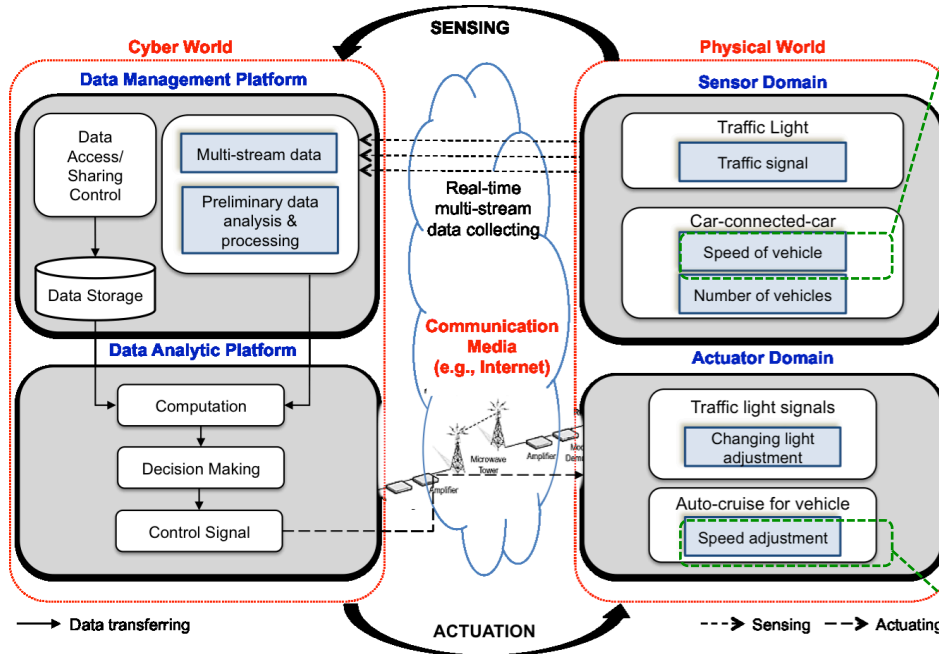
LING Siew Gin, TAN Yasuo and LIM Yuto
School of Information Science, JAIST



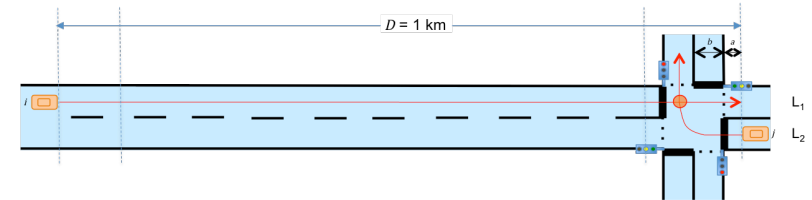
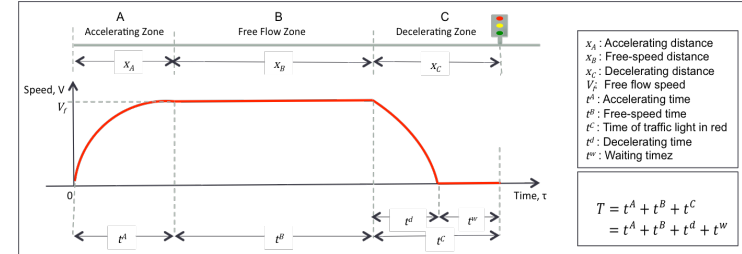
Cyber-Physical System:



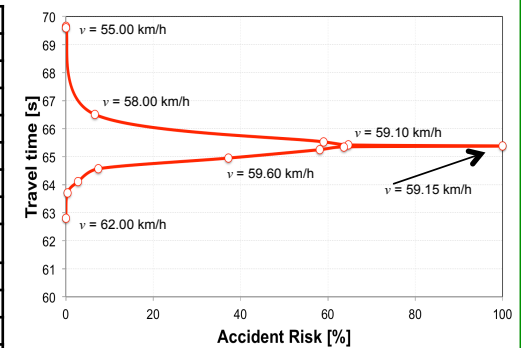
Efficient Vehicle Management (EVM) framework for cyber-physical ITS:



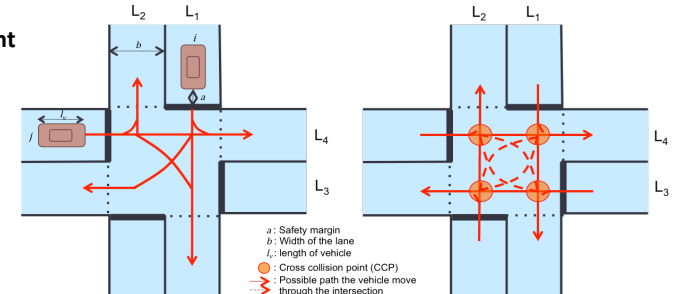
Travel time:



Parameter	Value
Total travel distance, D	1000 m
Safety margin, a	2 m
Width of lane, b	3 m
Length of vehicle, l_v	5 m
H	100
α (for all vehicles)	0.005
Turning status, ϕ_i	$L_1 0$ (straight)
Turning status, ϕ_j	$L_2 2$ (turn right)
$x_i(t) = l_v/2$	2.5 m
$p_{L1,0,L2,2} = b/2$	1.5 m
$p_{L1,2,L2,0} = b(1/2 + \sqrt{2})$	5.743 m
Average acceleration, a_{ab}	1.5 m/s ²



Accident Risk:



Tradeoff