

The End of Cruising for Parking in The Era of Autonomous Vehicles

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IBM survey shows that vehicles search for 20 minutes on average to find parking

30% of traffic in major cities is caused by drivers searching for a parking spot



There are 4 times more parking spots than vehicles in the USA



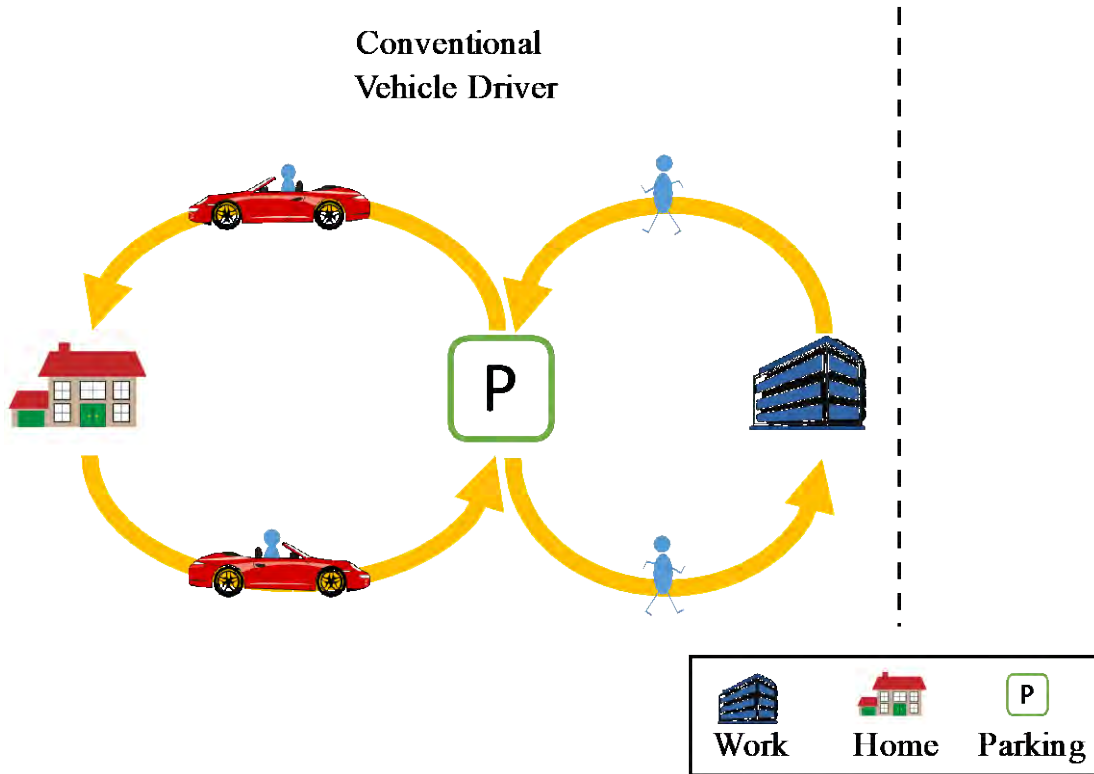
Overview:

- 1- Emerging parking patterns
- 2- Parking facility design

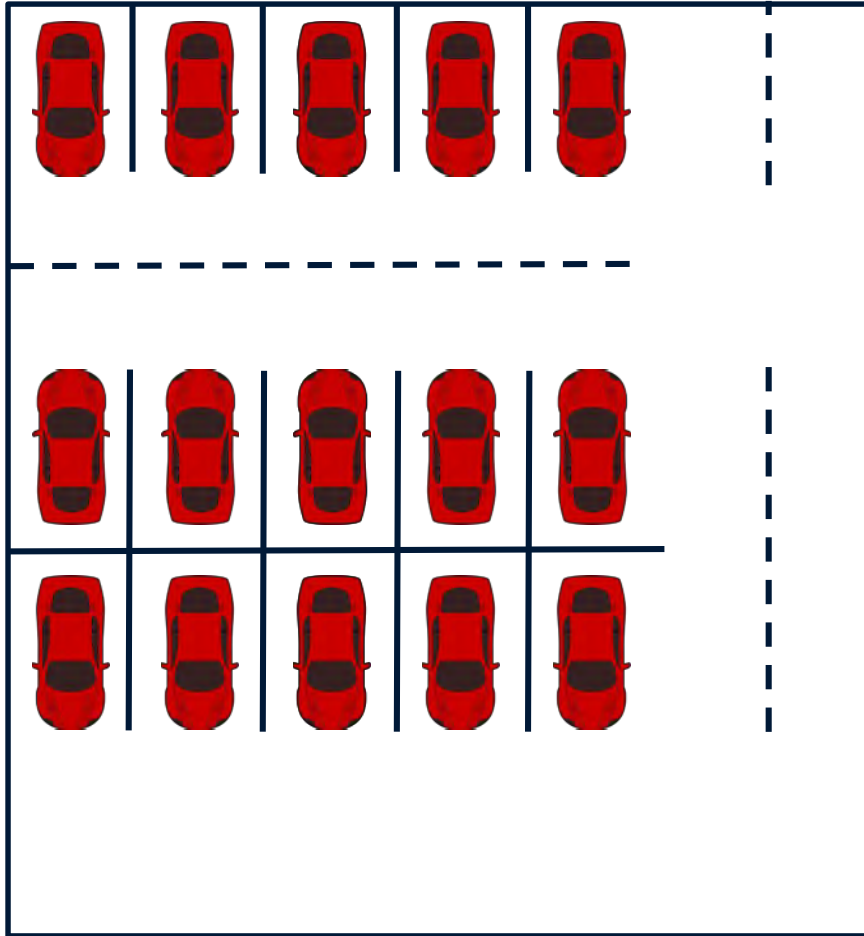


The Emerging Parking Pattern of Autonomous Vehicles

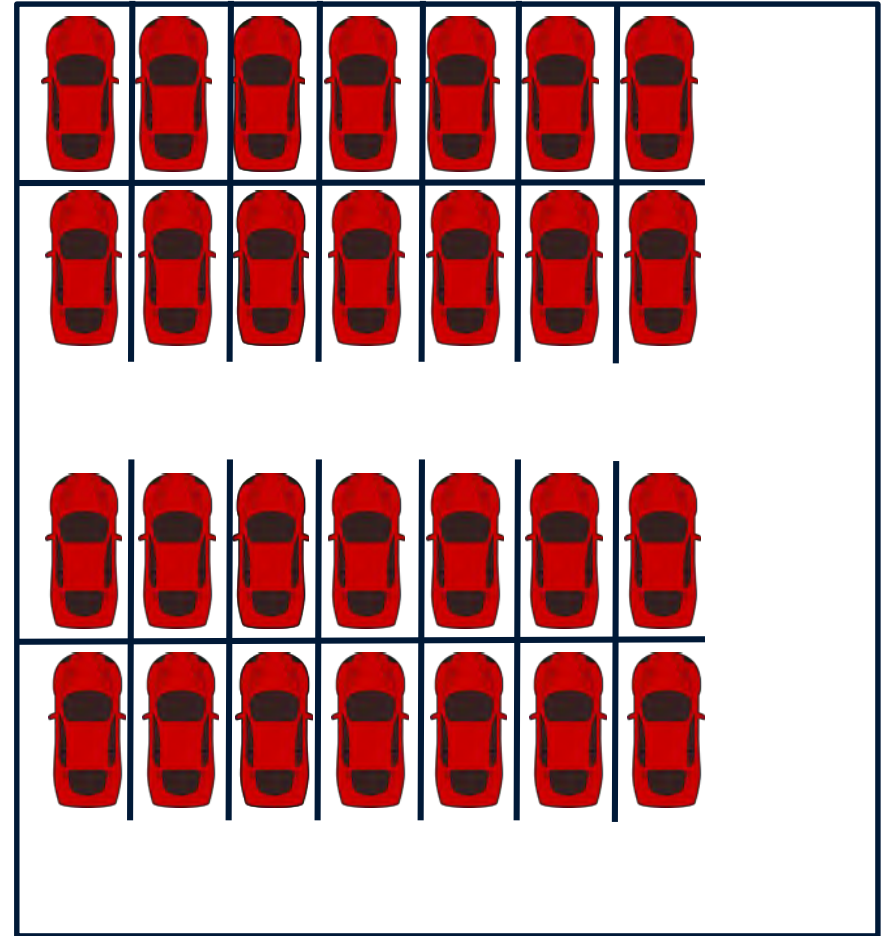
Conventional
Vehicle Driver



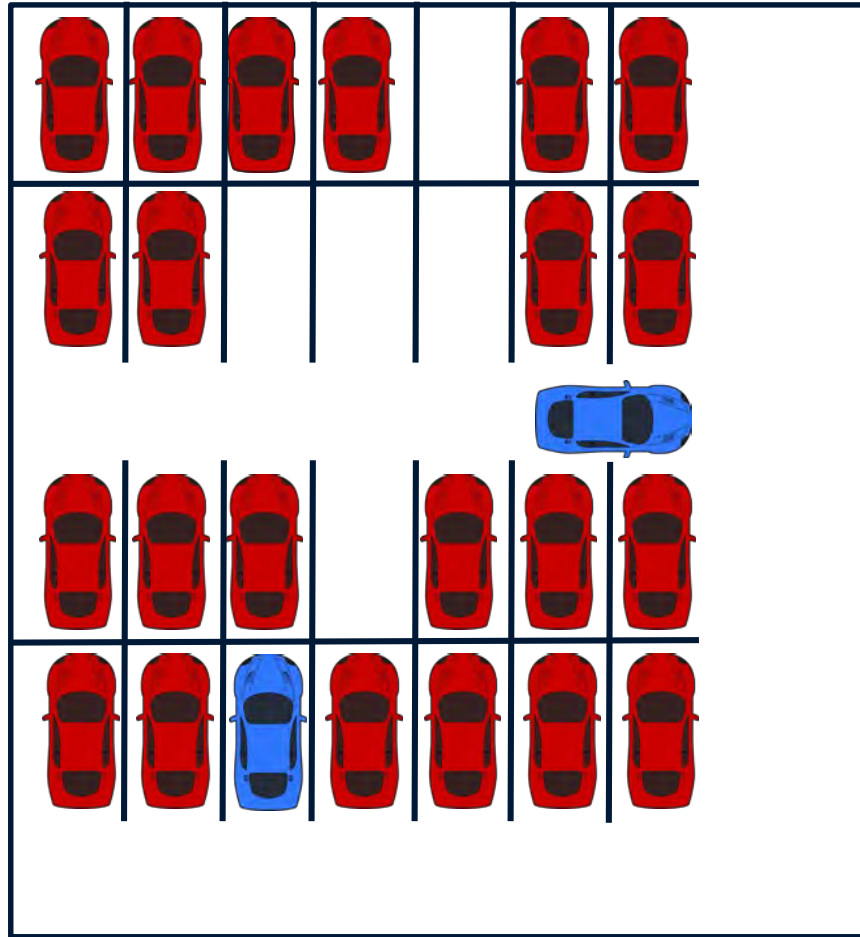
Conventional Vehicle Parking



Autonomous Vehicle Parking



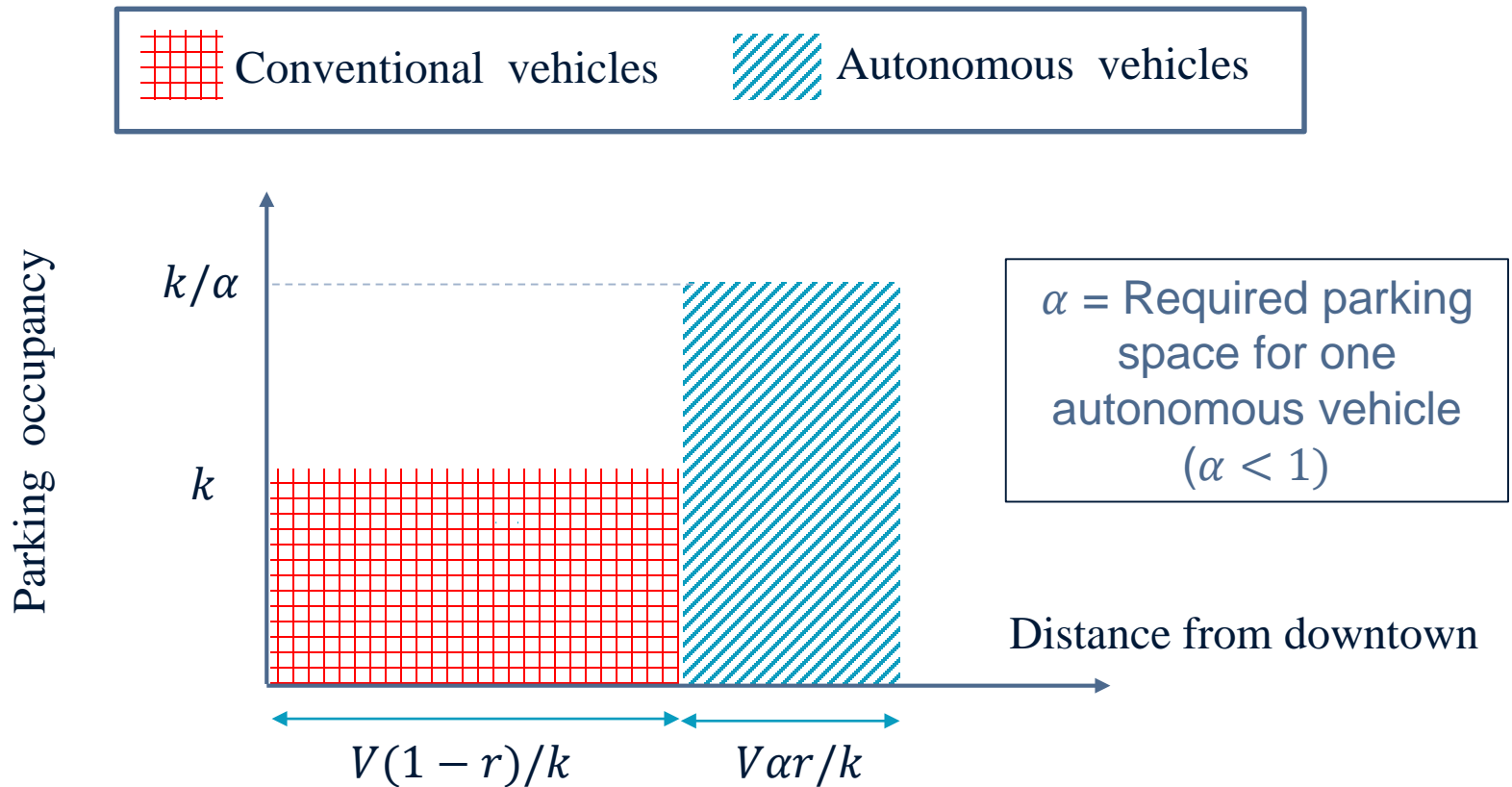
Flexible Relocation of AVs in Parking Lots



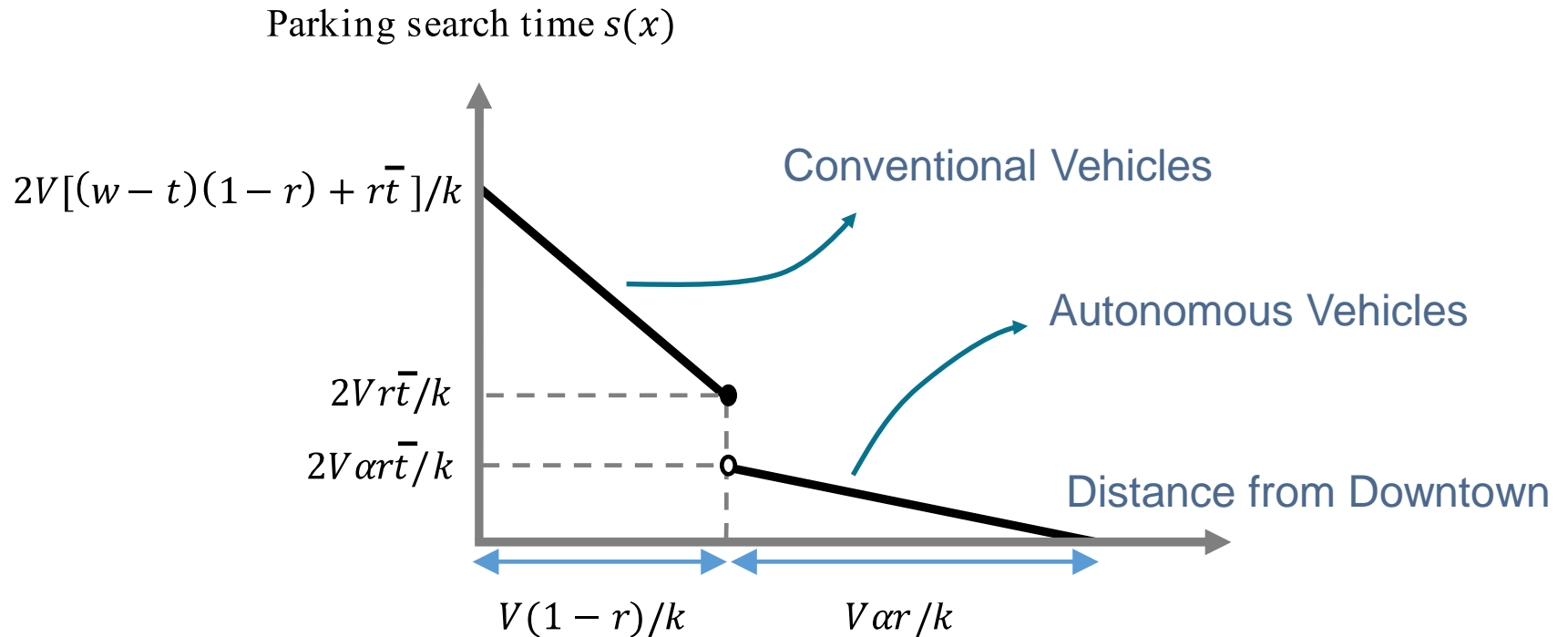
Objective: To Derive Parking Occupancy Distributions



Analytical Results With Uniform Parking Distribution [k spaces /km]



Parking Search Time



t : Transport cost /km

\bar{t} : Occupant-free transport cost /km

Optimal Parking Supply



Questions?