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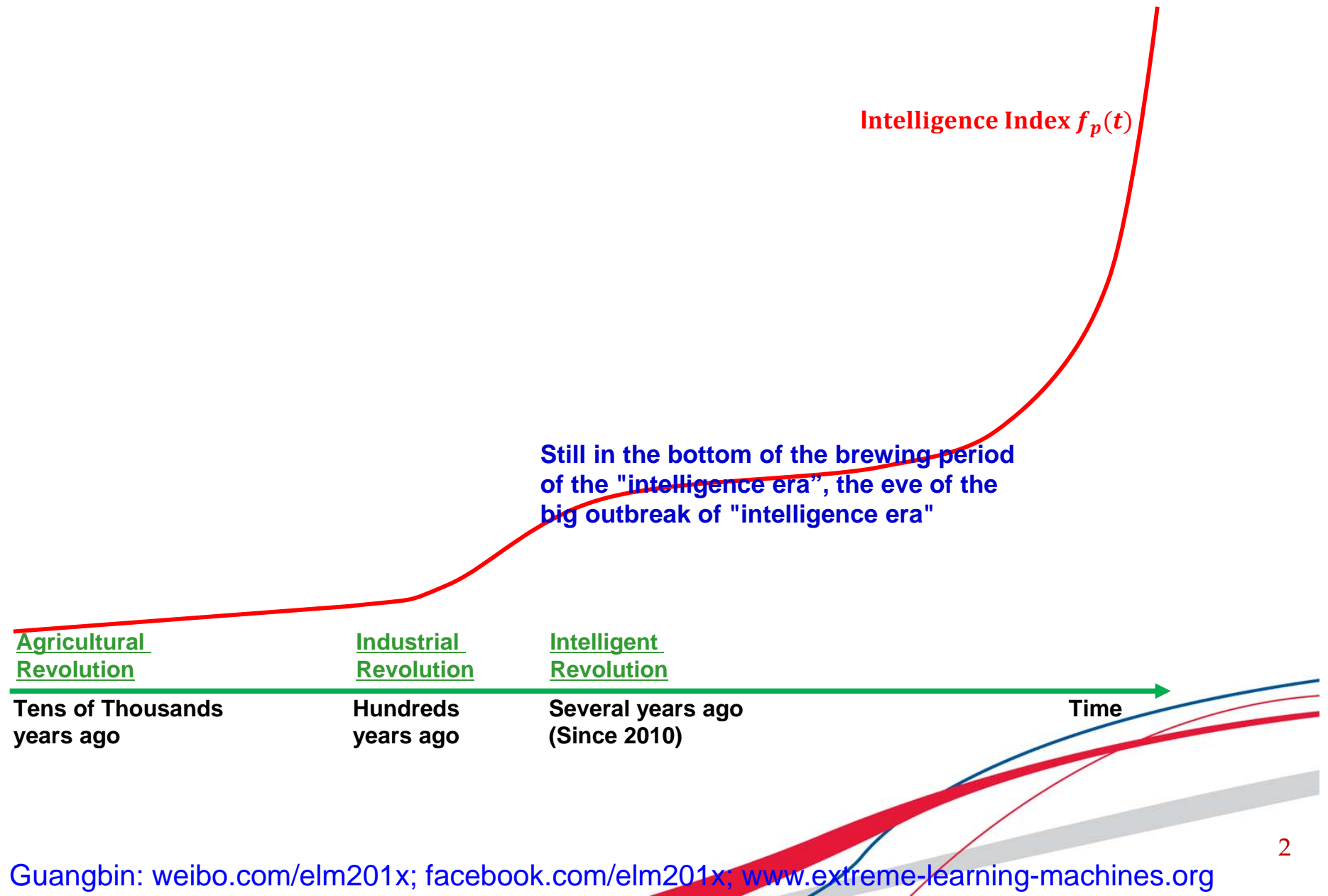
# **Roles of Artificial Intelligence and Machine Learning in Future Mobility**

**Huang Guangbin**

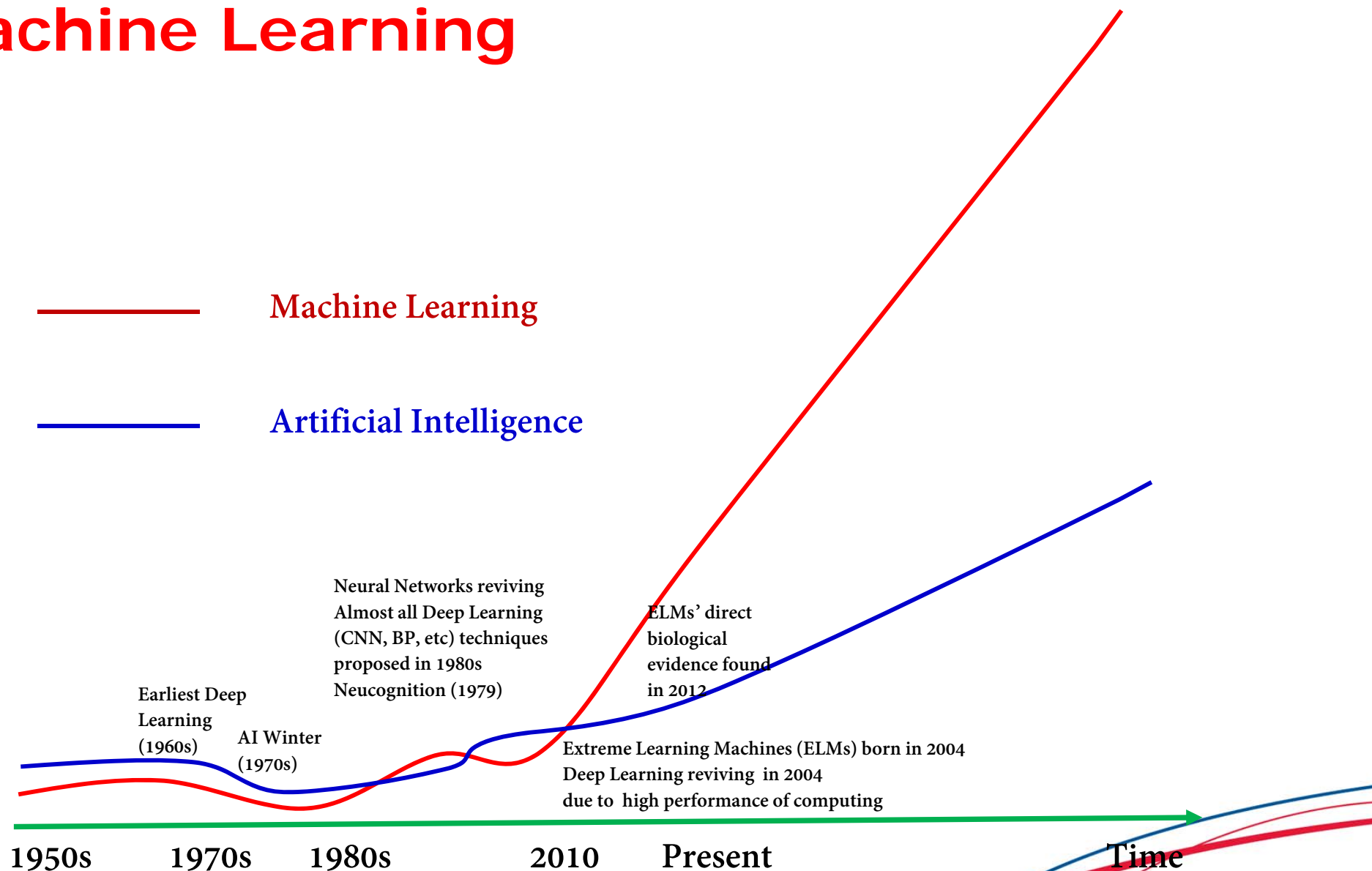
**Professor of School of Electrical and Electronic Engineering  
Nanyang Technological University, Singapore**

**ITU/IMDA Workshop on How Communications will Change Vehicles and Transport  
July 6 2017**

# Three Historical Revolutions



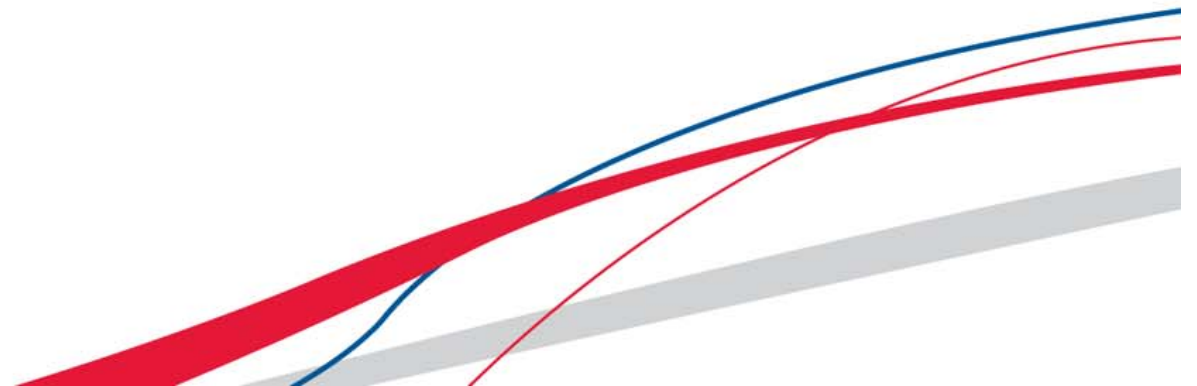
# Rethink Artificial Intelligence and Machine Learning



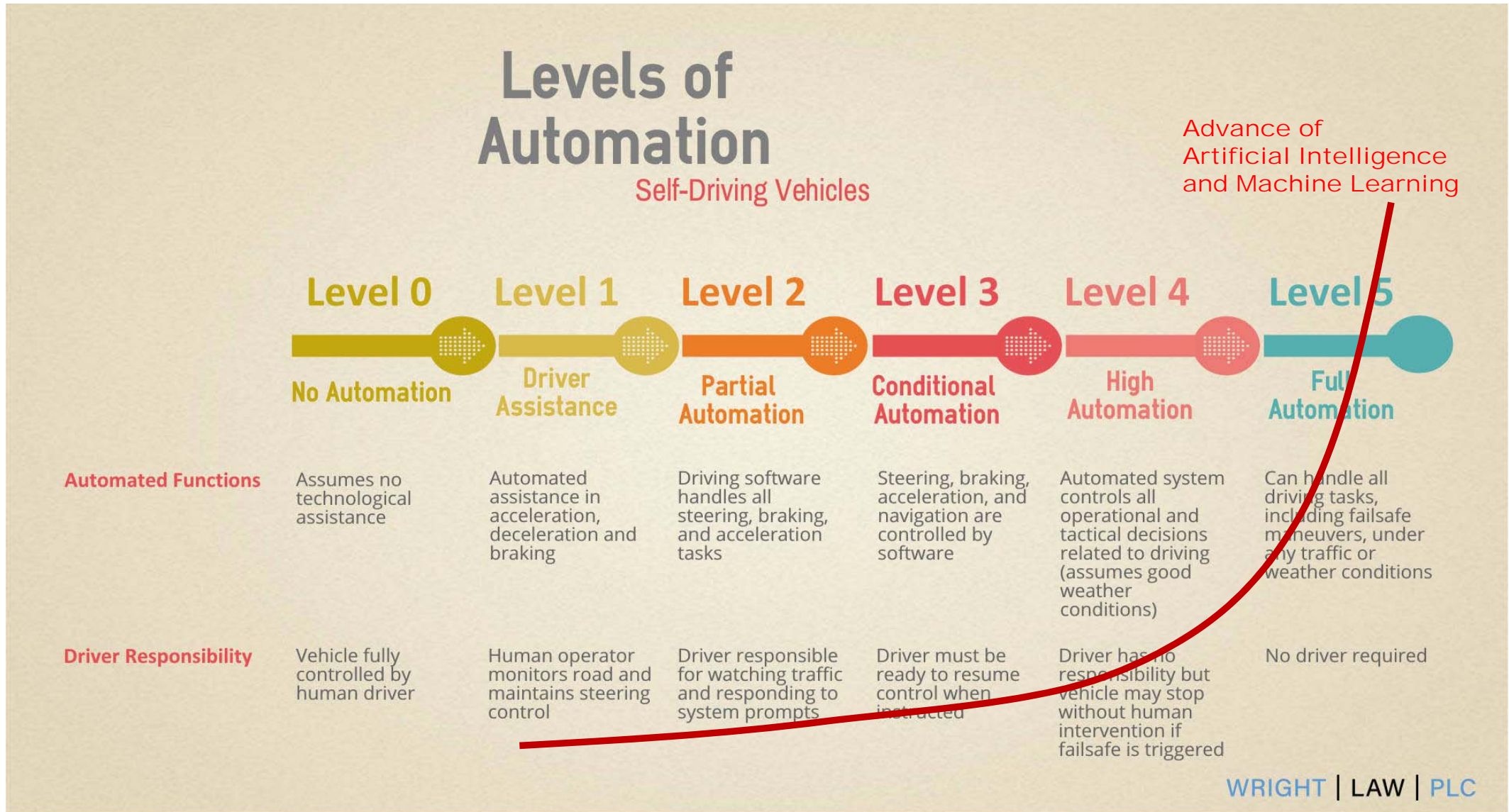


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# Intelligent Vehicles

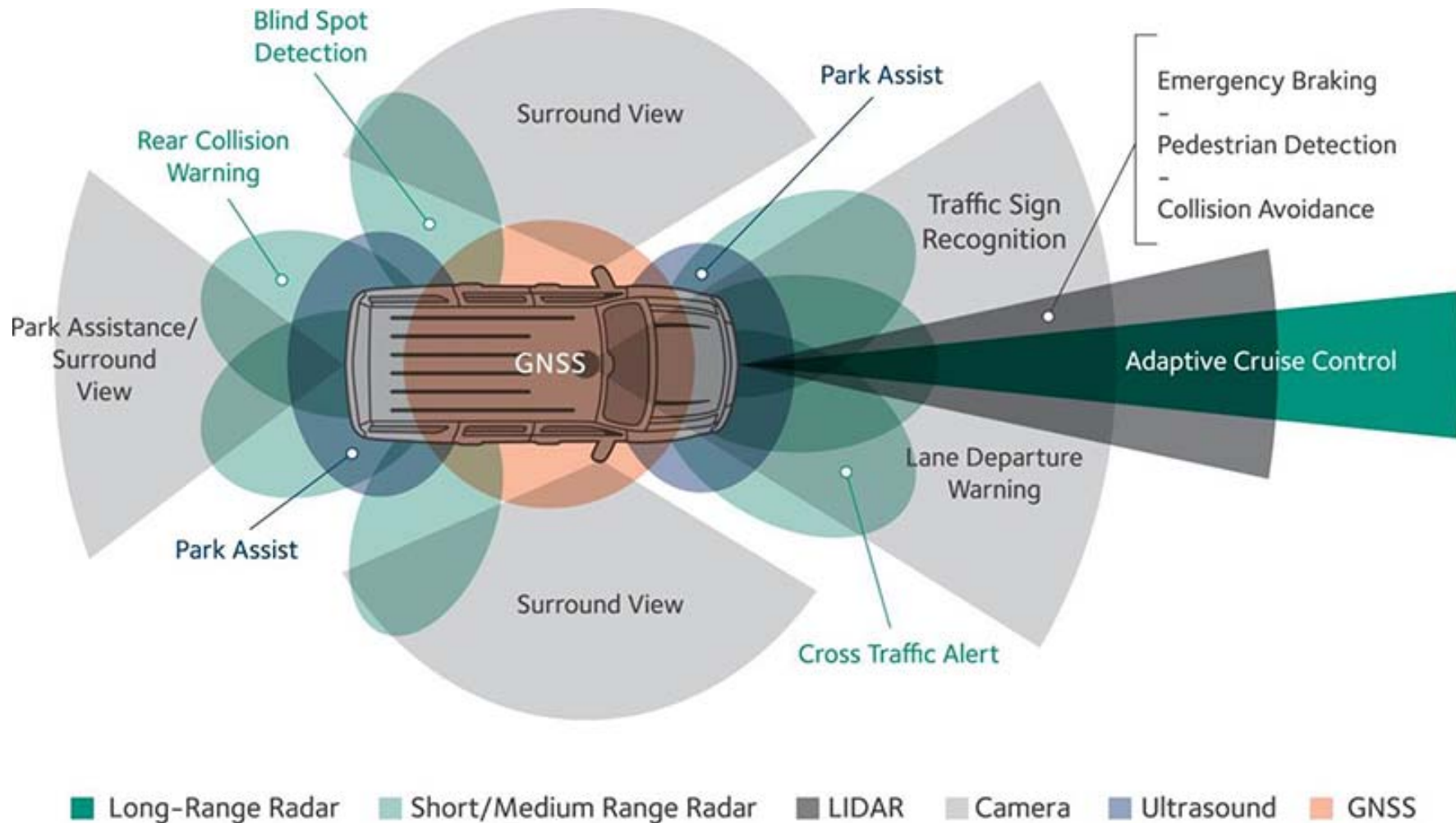


# AI / ML and Automation of Vehicles

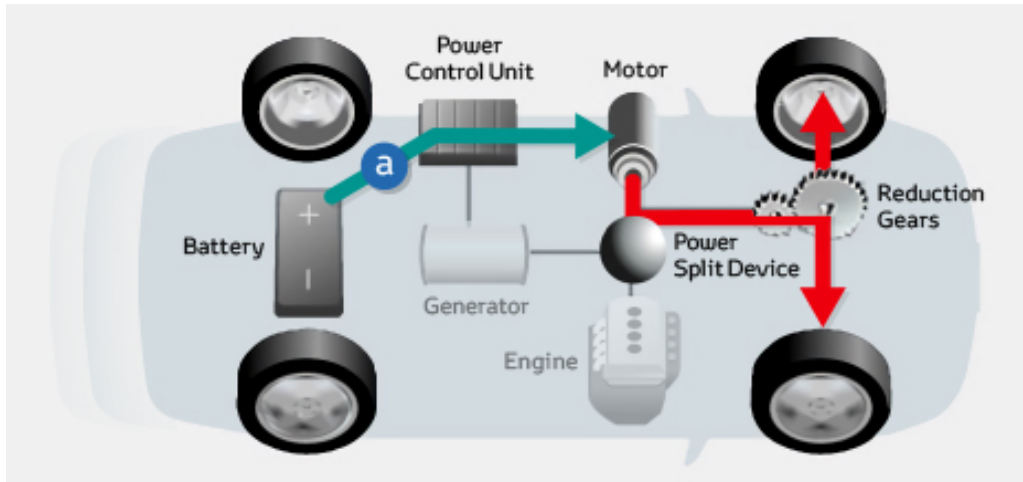




# AI / ML Making Vehicles Become Moving Data Centers and Intelligent Things



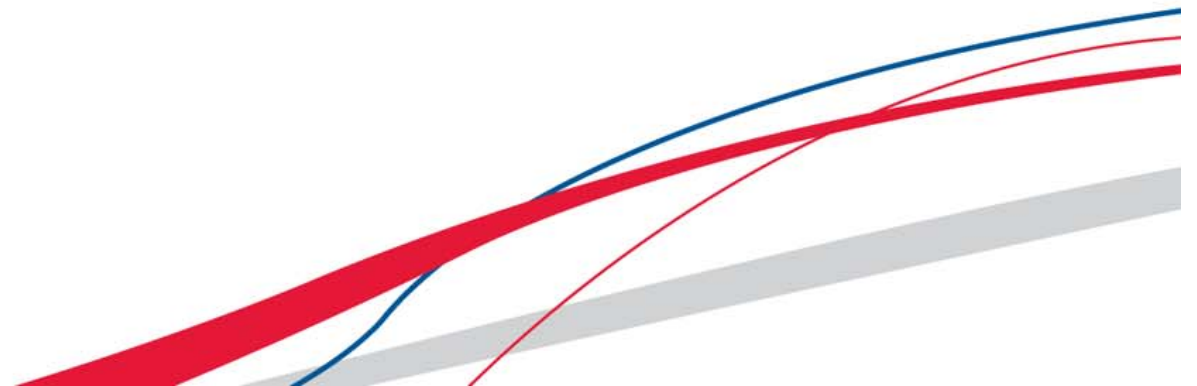
# Pervasive Intelligence Everywhere in Vehicles





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# **Intelligent Transportation Systems**



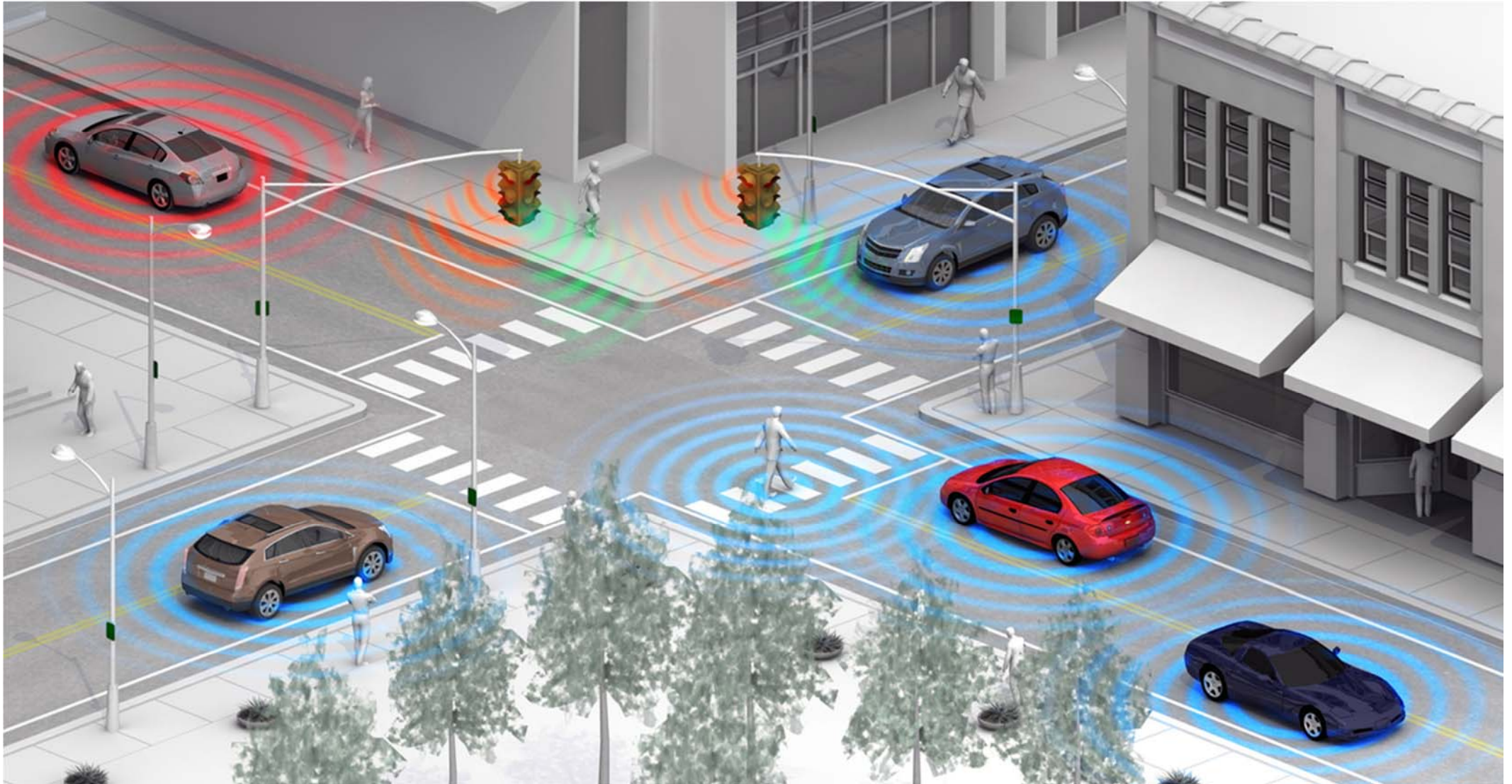


# Intelligence Transportation System

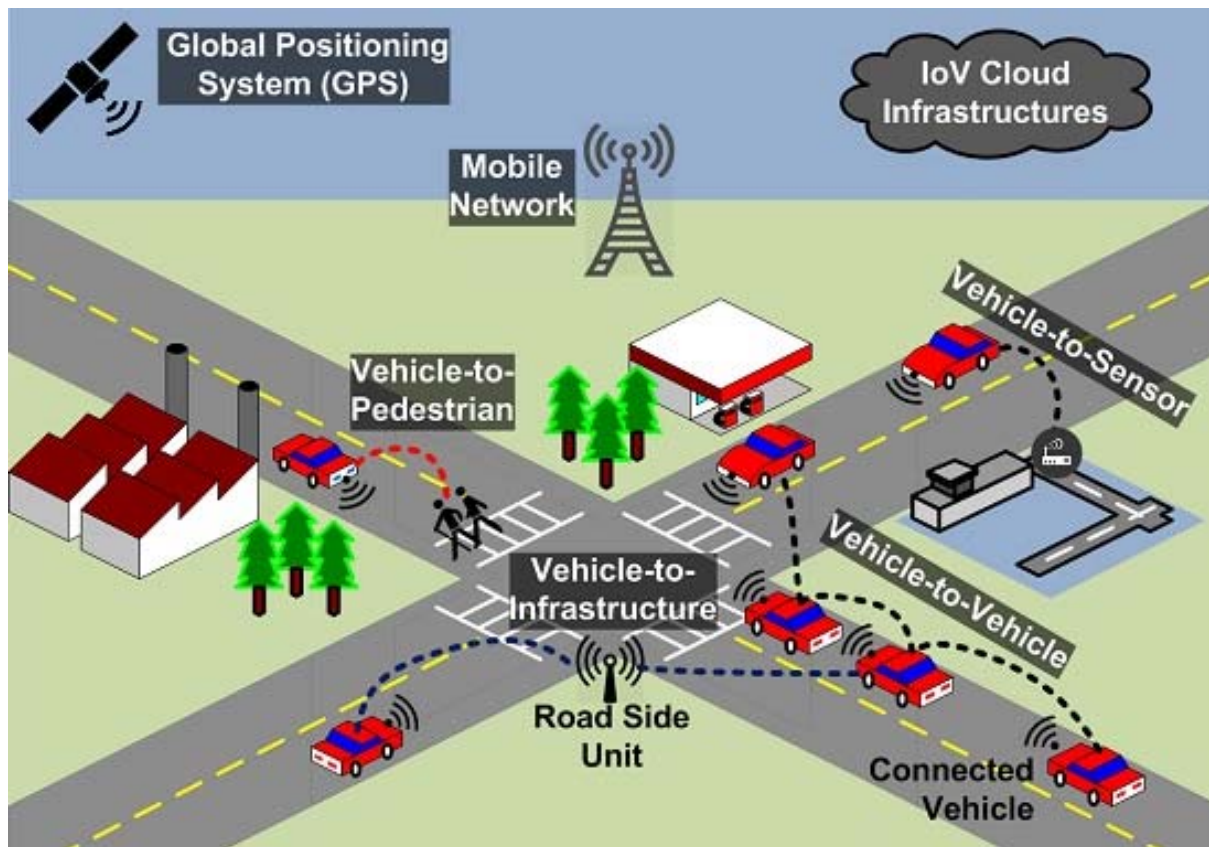




# Intelligence Transportation System



# Intelligence Scheduling and Planning





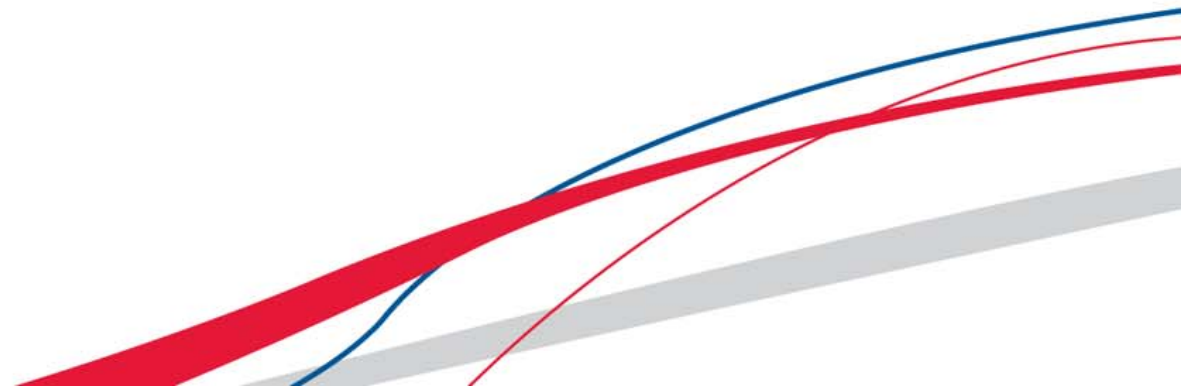
# Intelligence Parking System





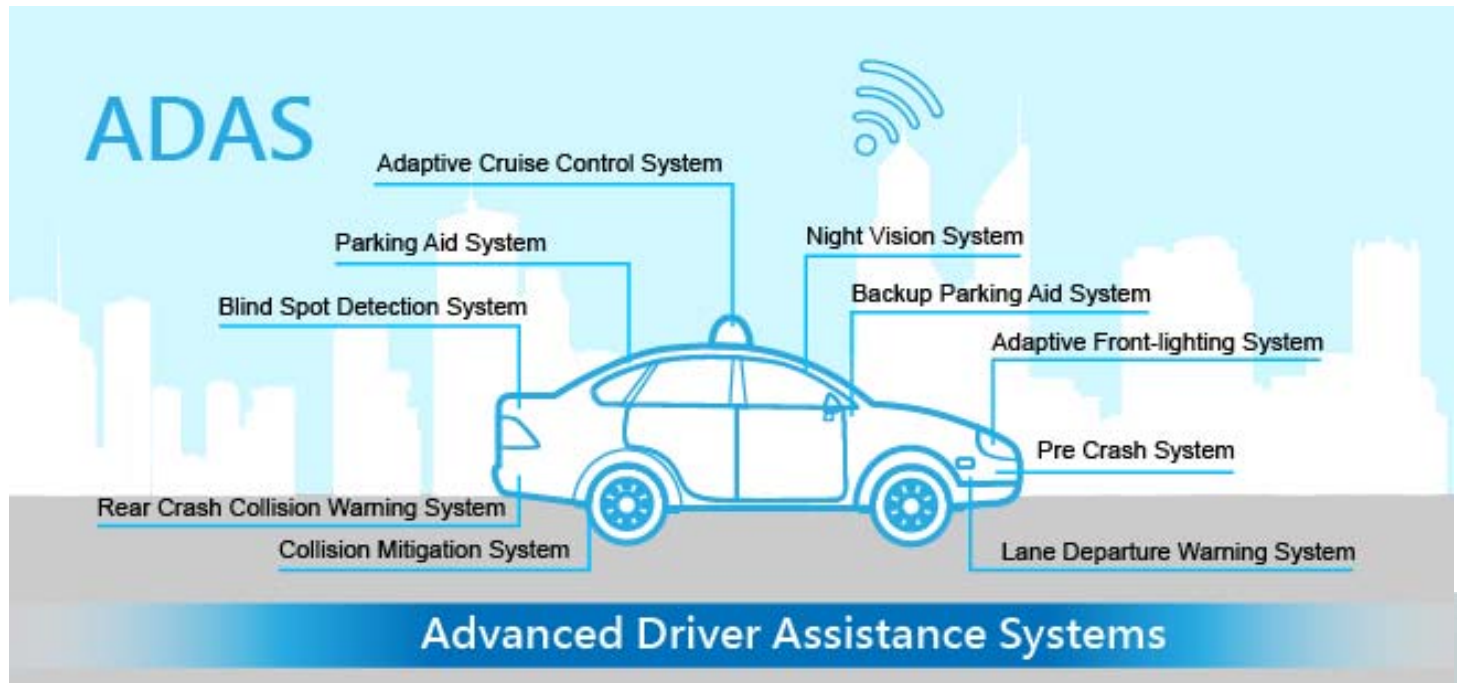
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# Autonomous Systems

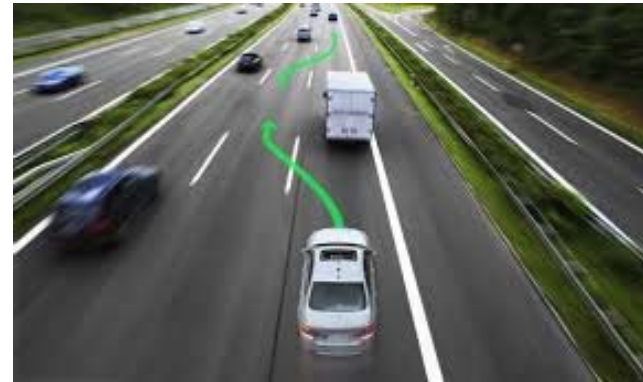




# Advanced Driver Assistance System (ADAS)



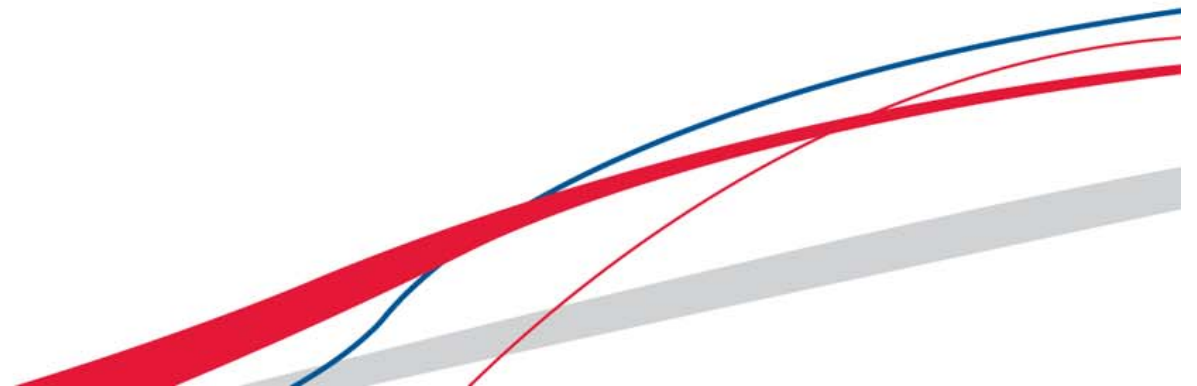
# Fully Autonomous Driving



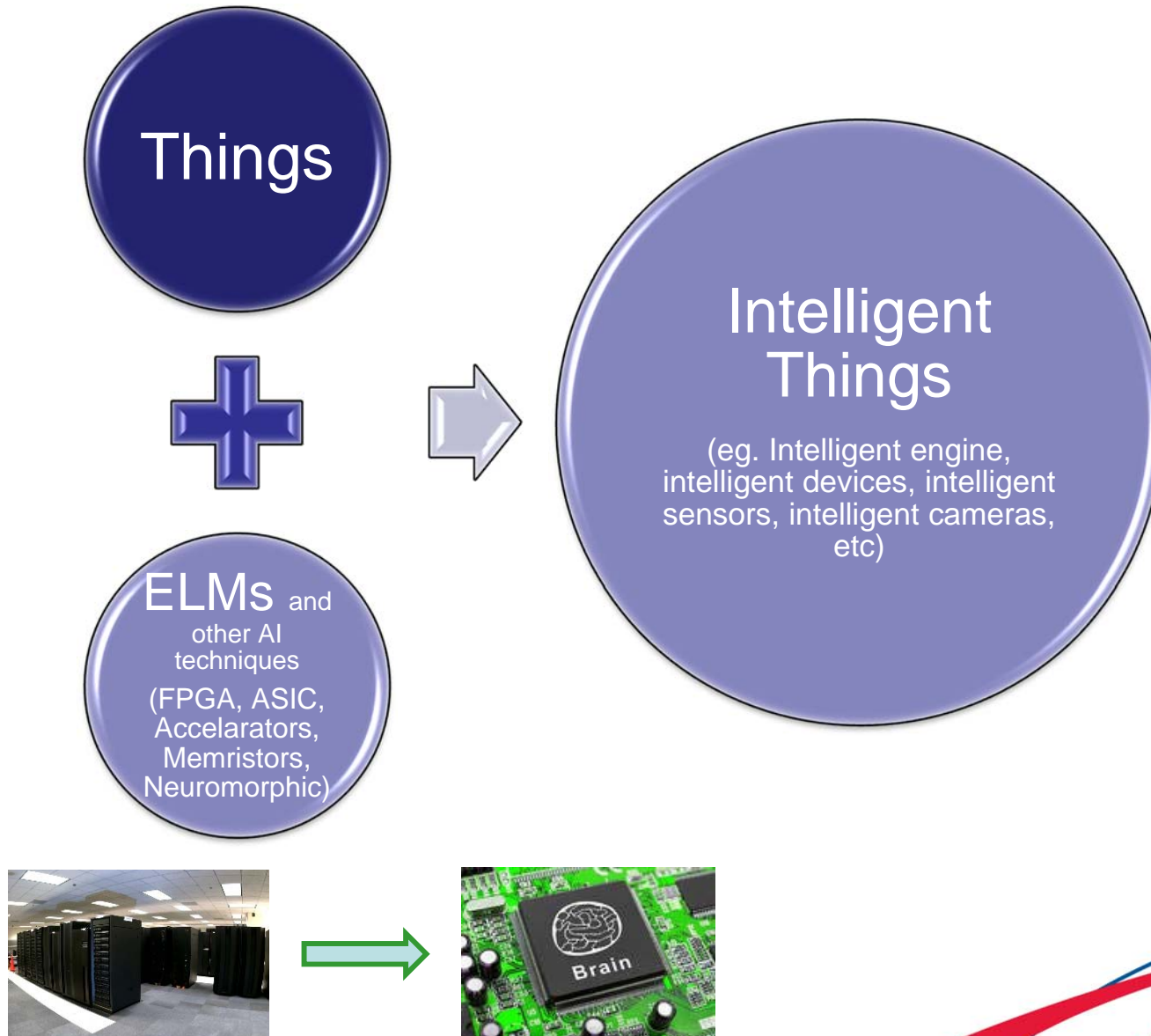


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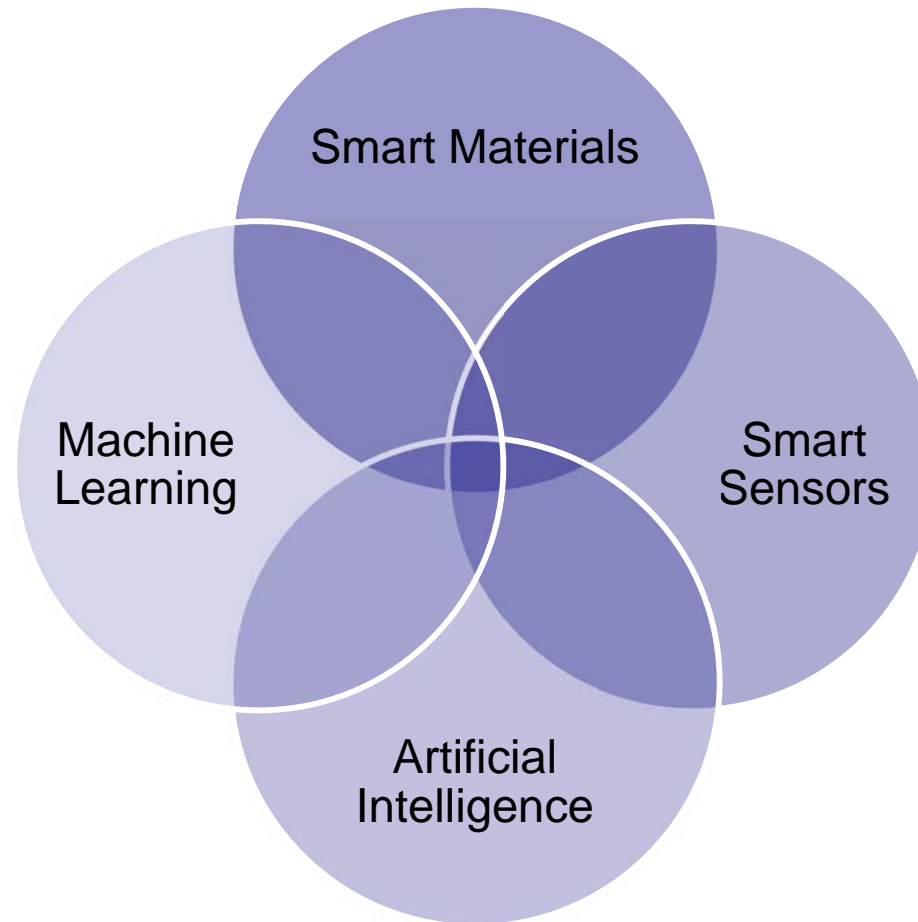
# Future Mobility and New Economy Model



# Opportunities: Internet of Intelligent Things in Future Mobility

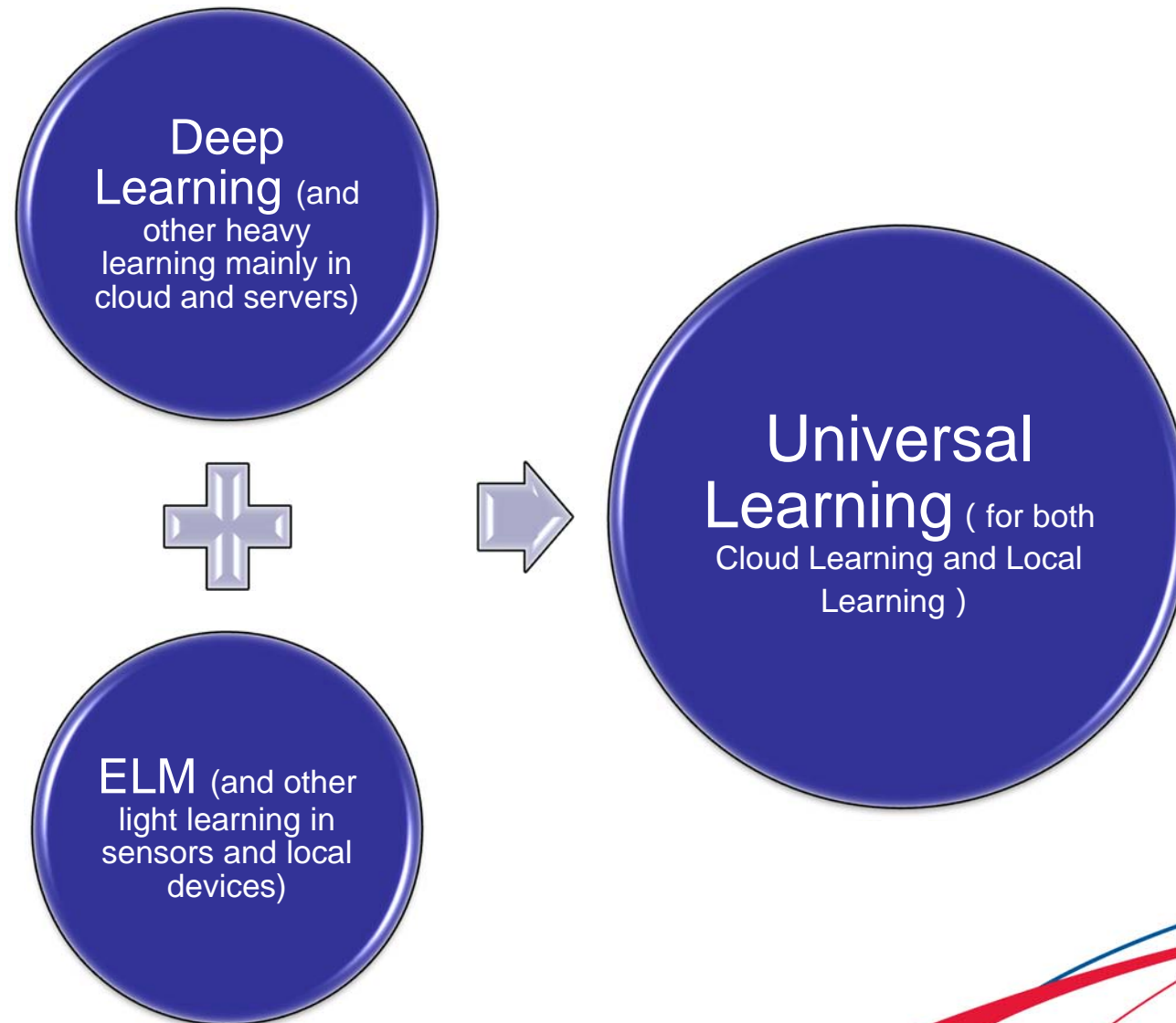


# Opportunities: Niche Technologies for Future Mobility





# Opportunities: Cloud Intelligence and Local Intelligence in Future Mobility



# Effects of AI / ML and Autonomous Driving

- Thousands of positive values / reasons
- New economy without or with less human participation
- Critical worries / contradictions :

- The dominance of human and biological intelligence will be challenged by the intelligence created by human.
- According to Darwin's theory of evolution, with the popularity and deepening of intelligence, some capabilities of human will be degraded (e.g, human's driving capability weakening in autonomous driving era).
- Although machine intelligence can be created by mankind, it is likely to become uncontrollable and uncertain.
- Positive / negative intelligence?

