

# CAREER: Multi-Resolution Model and Context-Aware Information Networking for Cooperative Vehicle Efficiency and Safety Systems

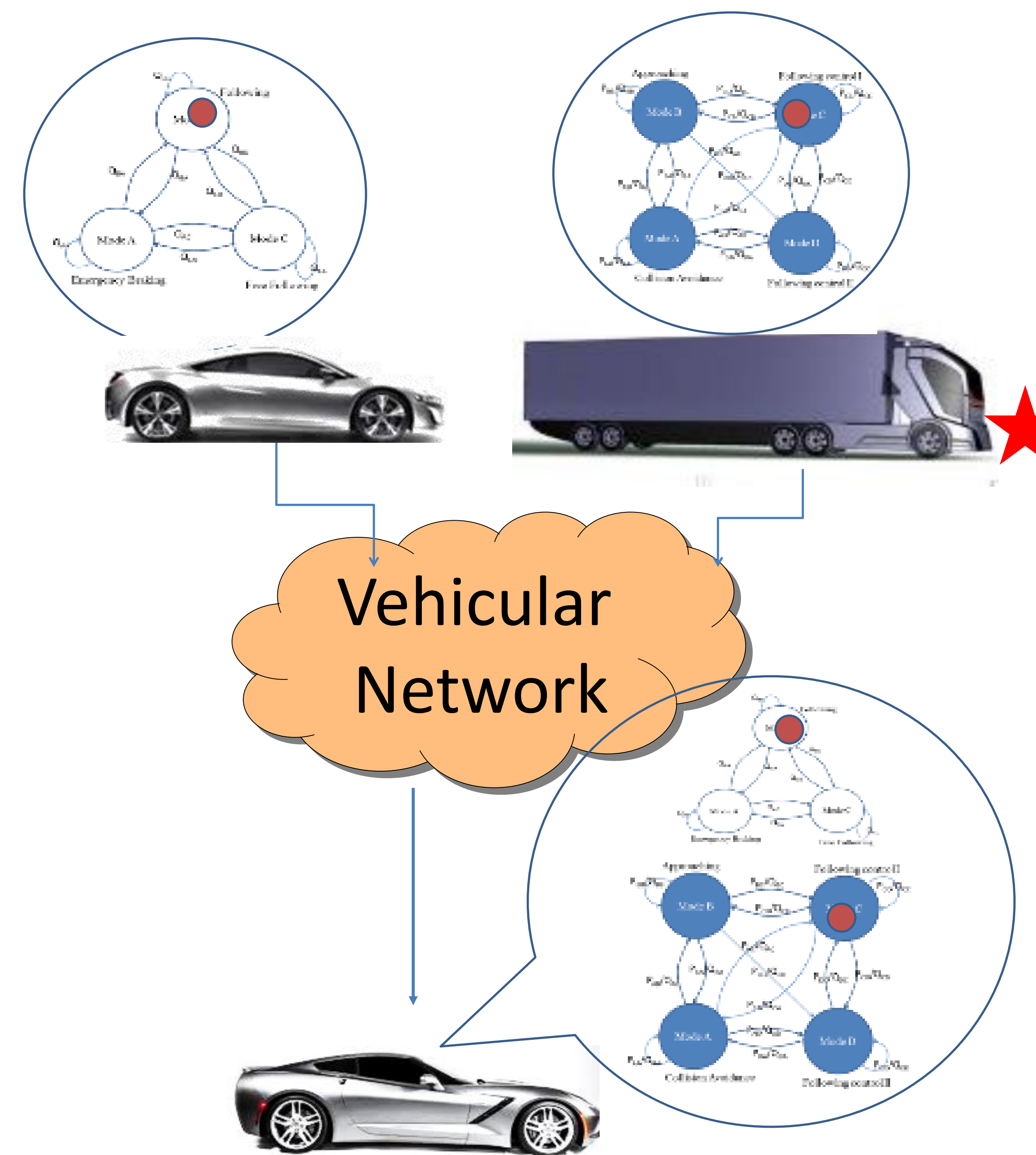
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## Challenge:

- Large scale deployment of Connected and Automated Vehicles (CAVs) will require rich situational awareness, which is hindered by V2X communication scalability issues.

## Solution:

- Transform *data communication* to *model communication (MC)*, allowing modeled situational awareness for complex behavior prediction, without requiring more V2X compacity
- Develop (hybrid systems) approaches for modeling dynamics of mixed human-automated driving systems
- Develop networking methods for modeled-view propagation.



## Approach:

- Vehicles **learn** their dynamical models, then **exchange** these models and model **updates** periodically; receivers construct a model-based view of their surrounding

## Scientific Impact:

- Information networking in any multi-agent CPS can use the model-based communication concept and model-bank based approaches for behavior description

## Broader Impact:

- 10x reduction in CACC spacing error
- 2x reduction in tracking error
- 2 UCF grad courses: 6712, 5871
- Training: hired undergraduate and graduate students from underrepresented groups

