

# **Proactive Doppler Shift Compensation in Vehicular Cyber-Physical Systems**

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# ABSTRACT

- In this paper, we provide a proactive Doppler shift compensation algorithm based on the probabilistic graphical model.
- Each vehicle pre-compensates its carrier frequency individually, so that there is no frequency shift from the desired carrier frequency between each pair of transceiver.
- The pre-compensated offset for each vehicle is computed in a distributed fashion in order to be adaptive to the distributed and dynamic topology of vehicular CPS.

# EXISTING SYSTEM

- In vehicular cyber-physical systems, safety information, including vehicular speed and location information, is shared among vehicles via wireless waves at specific frequency.
- This helps control vehicle to alleviate traffic congestion and road accidents.
- However, Doppler shift existing between vehicles with high relative speed causes an apparent frequency shift for the received wireless wave, which consequently decreases the reliability of the recovered safety information and jeopardizes the safety of vehicular CPS.

# PROPOSED SYSTEM

- Besides, the updating procedure is designed in a broadcasting fashion to reduce communication burden.
- It is rigorously proved that the proposed algorithm is convergence guaranteed even for systems with packet drops and random communication delays. Simulations based on real map and transportation data verify the accuracy and convergence property of the proposed algorithm.

# HARDWARE REQUIREMENTS

- Processor - Intel core i3
- RAM - 2B
- Hard Disk - 20 GB

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# SOFTWARE REQUIREMENTS

- Operating System : LINUX
- Tool : Network Simulator-2
- Front End : OTCL (Object Oriented Tool Command Language)

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# REFERENCE

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