Available

Deep Learning-Based Automotive Radar Spectrum Sharing

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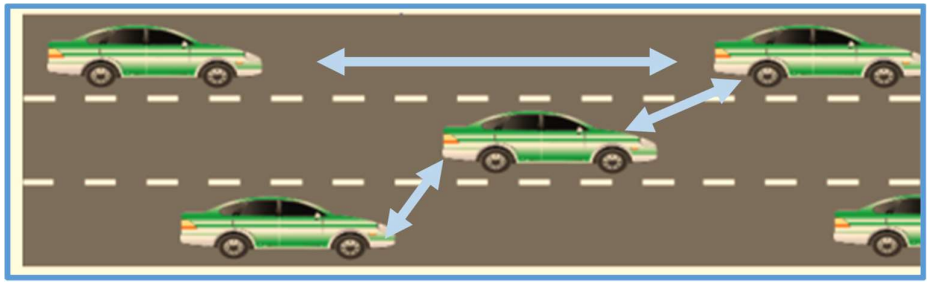
Project description:

Automotive radar provides reliable all-weather long range sensing capability to autonomous vehicles. When compared to vision-based sensors, there is no deterioration in performance at night and direct, accurate measurement of (Doppler) velocity can be obtained with radar. In a crowded traffic environment, vehicle-to-vehicle (V2V) crosstalk can interfere with radar transmissions. Therefore, there has been considerable interest in designing transmission techniques so that radars mounted on several vehicles can avoid V2V communication interference.

The goal of this project is to use deep learning (DL) in determining lowest interference radar transmit bands and directions to communicate with other vehicles. We would employ recent advances in cognitive radar where the transmit signal can be confined to only a few narrow disjoint bands. The project involves formulating the problem for DL and experimenting with different learning algorithms.



Required background

Signal and systems (essential), Mavlas (essential), Random signals (desirable)

Environment

MATLAB, TensorFlow