

Efficient Handling of Mutual Interference for Automotive Radar Sensors

Modern cars as well as emerging autonomously driving cars are equipped with a wealth of sensors, including cameras, ultrasonic park sensors, Lidar, and radar sensors. The latter are essential for assisted and future autonomous driving, since radar can in principle work also in harsh environments, where e.g. vision-based systems may fail. However, such sensor systems are safety-critical elements in a car, and therefore, they have to be made robust to different kinds of external influences.

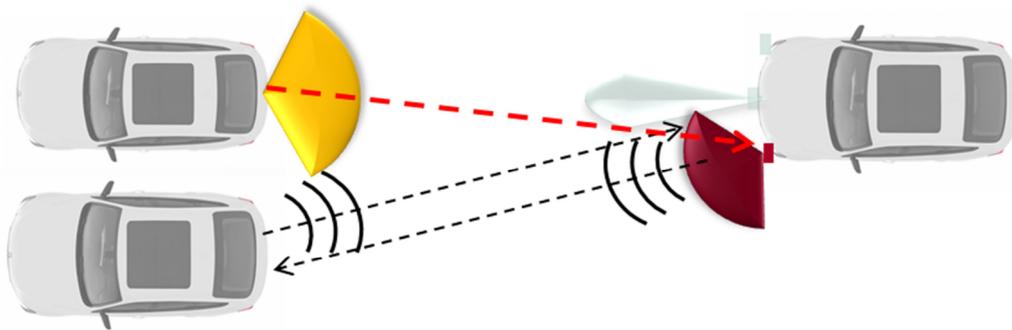


Figure 1: Mutual Interference scenario, car in front impairs corner radar of the car in the back

More and more cars will be equipped with radar sensors in the near future; hence mutual interference between them is inevitable, and radar sensors need to cope with it. This can partly be done by choosing suitable transmission schemes that avoid interference, but also, as interference can never be completely ruled out, the remaining effects on the signals to be processed need to be taken into account. This work focusses on signal processing algorithms that allow detecting and/or cancellation of impairments caused by interference. A crucial aspect of this topic is that interference handling needs to be done within the radar sensor, where computation power is scarce.

This is a highly important topic for reliable future sensors; hence Infineon offers a paid master/diploma thesis focusing on:

- Selection of candidate algorithms from the literature that satisfy performance requirements and for which a low-complexity implementation seems possible
- Implementation and evaluation
 - Within a given Matlab simulation framework as proof-of-concept and
 - On state-of-the-art Infineon evaluation boards featuring radar frontend and microcontroller using existing software framework
- You are...
 - Not shy to use Matlab and C and to go into details
 - Eager to understand more about vehicular sensors and be part of the research

If you are interested in participating, please contact us. We are looking forward to hear from you!

Paul Meissner
Infineon Technologies Austria AG, Development Center Graz
Email: paul.meissner@infineon.com

