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Detection and Tracking Approach Using an Automotive Radar to Increase Active Pedestrian Safety

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Abstract : Vulnerable road users, e.g. pedestrians, have a high impact on fatal accident numbers. To reduce these statistics, car manufactures are intensively developing suitable safety systems. Hereby, fast and reliable environment recognition is a major challenge. In this paper we describe a tracking approach that is only based on a 24 GHz radar sensor. While common radar signal processing loses much information, we make use of a track-before-detect filter to incorporate raw measurements. It is explained how the Range-Doppler spectrum can help to indicated pedestrians and stabilize tracking even in occultation scenarios compared to sensors in series.

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