

Automatic Vehicle Detection Using Circular Synthetic Aperture Radar Image

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Abstract : Automatic vehicle detection using synthetic aperture radar (SAR) image has been widely researched, as well as using optical remote sensing images. However, most researches treat the detection as an independent problem, failing to make full use of SAR data information. In circular SAR (CSAR), the two long borders of vehicle will shrink if the imaging surface is set higher than the reference one. Based on above variance, an automatic vehicle detection using CSAR image is proposed to enhance detection ability under complex environment, such as vehicles' closely packing, which confuses the detector. The detection method uses the multiple images generated by different height plane to obtain an energy-concentrated image for detecting and then uses the maximally stable extremal regions method (MSER) to detect vehicles. A result of vehicles' detection is given to verify the effectiveness and correctness of proposed method.

Keywords : circular SAR, vehicle detection, automatic, imaging

Conference Title : ICASSP 2018 : International Conference on Acoustics, Speech and Signal Processing

Conference Location : Kyoto, Japan

Conference Dates : November 15-16, 2018