An Image Denoising Method for SAR Images with Low-Sampling Measurements

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ABSTRACT
This paper proposed an image denoising method for the synthetic aperture radar (SAR) images. The images are reconstructed from measurements of a low-sampling rate by compressed sensing (CS) based method. The reconstructions are still suffers from noise and aliasing for the sampling rate is much lower than the Nyquist sampling-rate (15%-25%). This proposed denoising method considers pending SAR images as a level set function. We design a step curvature flow function that eliminates the aliasing and noise and enhance the objects of interests in the SAR images. Images from simulation and real measurements show that this method could highly improve the quality of the SAR image on a rapid computation. With this method, only 20% measurement is necessary in SAR experiment to identify the objects of interest.

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