IAF EARTH OBSERVATION SYMPOSIUM (B1)
Interactive Presentations - IAF EARTH OBSERVATION SYMPOSIUM (IP)

Author: Mr. Hao Wang
National Key Laboratory of Science and Technology on Aerospace Intelligence Control, Beijing Aerospace Automatic Control Institute, China, whipraihust@163.com

Dr. Ruiguang Hu
Beijing Aerospace Automatic Control Institute, China, rghu258@163.com
Dr. Shibo Gao
Beijing Aerospace Automatic Control Institute, China, gaohbob@gmail.com
Mr. Songzhi Jin
Beijing Aerospace Automatic Control Institute, China, gjsz-525@163.com
Mr. Liping Xiao
Beijing Aerospace Automatic Control Institute, China, xlp027@sina.com

A NOVEL SAR FORMATION TARGETS RECOGNITION ALGORITHM USING TOPOLOGY STRUCTURE

Abstract

This paper proposes a SAR formation targets recognition algorithm based on topology structure of the formation. Taking advantage of the topology structure invariance of relative geometric positions of targets in a group, the algorithm can recognize and locate vehicles, corner reflectors, clustered artificial facilities and other formation targets in SAR images. The algorithm can reduce the false alarm rate for SAR images with ground clutter effectively, and increase the recognition accuracy. Experimental results demonstrate that the algorithm can suppress the influence of ground clutter, and is quite robust to heavy image noise and partial targets loss. This algorithm has promising application value in surveillanceautomatic testing of synthetic aperture radar, etc.