

论文

基于样本正交子空间的SAR目标识别方法

韩 征, 苏志刚, 韩 萍, 吴仁彪

中国民航大学智能信号与图像处理天津市重点实验室 天津 300300

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摘要

利用合成孔径雷达(Synthetic Aperture Radar, SAR)获取的目标像进行识别时, 基于子空间的自动目标识别(Automatic Target Recognition, ATR)方法通常是对样本数据的值空间进行操作。当识别相似目标时, 由于彼此的值空间存在较大的交集, 生成的识别模板的可分性较差。该文提出一种SAR目标ATR方法, 该方法将SAR样本数据的正交子空间作为投影空间。因此, 不同类目标样本在投影空间的差异性加大, 能够明显提高识别效果。实验结果表明, 本文方法的识别性能优于其它同类方法。

关键词 [自动目标识别](#) [合成孔径雷达](#) [特征模板](#) [正交子空间](#)

分类号 [TN957.51](#)

SAR Target Recognition Method Based on Orthogonal Subspace of Samples

Han Zheng, Su Zhi-gang, Han Ping, Wu Ren-biao

Tianjin Key Laboratory for Advanced Signal Processing, Civil Aviation University of China, Tianjin 300300, China

Abstract

To identify with the target images obtained by Synthetic Aperture Radar (SAR), those subspace-based methods for Automatic Target Recognition (ATR) are usually based on the range subspace of the samples. When some similar targets need to be distinguished, the corresponding templates are poorly separable because the range subspaces of each other have a big intersection. A method for SAR target ATR is proposed in this paper, which considers the orthogonal complement subspace of the samples as the projection subspaces. Consequently, the difference, between the projections of the different type targets on the projection subspace, is enlarged, which significantly improves the identification performance. Experimental results show that the proposed method is superior to the other similar methods.

Key words [Automatic Target Recognition \(ATR\)](#) [Synthetic Aperture Radar \(SAR\)](#) [Feature template](#) [Orthogonal subspace](#)

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通讯作者 苏志刚

作者个人主页 韩 征; 苏志刚; 韩 萍; 吴仁彪

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