激光技术

全向激光告警系统中SWIRFPA的盲元补偿算法

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摘要：

针对全向激光告警系统中SWIRFPA的盲元补偿问题，提出一种基于邻域灰度特性的加权插值盲元补偿算法。阐述该算法的基本思想和原理，根据盲元邻域灰度值的分布情况，赋予每个邻域像元与其灰度值相关的权重，进而完成盲元补偿。从主客观2个角度对补偿效果进行评价。结果表明：与传统的邻域平均法和中值滤波法相比，加权插值盲元补偿算法对全向激光告警系统中SWIRFPA的盲元补偿效果最好，不仅使盲元补偿值与其邻域偏差最小，而且减小了盲元对系统探测的影响，有效提高了系统性能。

关键词： 全向激光告警 盲元补偿 加权插值 SWIRFPA

ABlind-pixel compensation algorithm for SWIRFPA in omni-directional laser warning system

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Abstract:

In order to implement blind-pixel compensation for IRFPA in omni-directional laser warning system, a new weighted interpolation algorithm based on neighborhood grey character is presented. The impact of blind-pixel on the system was analyzed, the basic concept and principle of the algorithm were elaborated and analyzed, and the algorithm was verified by experimental simulation. Finally, the blind-pixel compensation result was evaluated subjectively and objectively. Compared with the conventional algorithms of neighborhood averaging and mid-value filter, the new algorithm is more suitable for the blind-pixel compensation of omni-directional laser warning system. The blind-pixel compensation offset of the new algorithm is smaller than those of the other two algorithms, and it reduces the impact of blind-pixel influence on the system, which can improve the system working performance effectively.

Keywords: omni-directional laser warning blind-pixel compensation weighted interpolation SWIRFPA

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