

## 扩展差值函数及其在图像运动估计中的应用

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**摘要** 为了改善基于差值函数的运动估计算法采用幅值恒定平动模型时对光照条件变化的图像估计效果, 在分析差值函数性能的基础上, 定义了扩展差值函数的概念, 并证明其零点与平移量之间具有简单线性关系, 且该性质与光照度无关。在此基础上提出了Radon变换域中基于扩展差值函数的平移运动估计算法, 实验结果表明, 该算法对光照变化不敏感, 噪声鲁棒性强, 计算复杂度低, 可扩展性强。

**关键词** [信息处理技术](#) [运动估计](#) [扩展差值函数](#) [Radon变换](#)

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## Extended difference function and its application in image motion estimation

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**Abstract** Since difference function (DF) based motion estimation methods with translational motion model without magnitude changing limits performance in image estimation with varying illumination, a novel method of translation estimation on the basis of extended difference function in Radon domain was developed after the analysis of difference function, the definition of extended difference function (EDF), and proof of linear relation between zeros and translation vector, which is irrelevant to illumination. Experiments were conducted on this method for different set of image with illumination changes. The results demonstrate that this method is invariance to illumination changes with robustness against noise at low computation cost.

**Key words** [information processing](#) [motion estimation](#) [extended difference function](#) [Radon transform](#)

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