

博士论坛

## 基于目标尺度的自适应高斯滤波

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**摘要** 将具有形态学意义的目标尺度与传统的线性高斯滤波相结合提出了一种自适应高斯滤波, 它的主要思想是: 利用求出的目标尺度来控制各像素点高斯滤波的方差和模板大小。针对原有的目标尺度求解算法不能适应可见光图像去噪的问题, 一方面, 引入中值滤波以去除对目标尺度求解影响较大的强噪声点, 另一方面, 又调整了求解目标尺度算法中的参数。仿真实验证明, 该算法可以在去除噪声的同时保护图像的细节, 而且不论从主观上还是客观上都优于传统的几类图像平滑算法, 且不需要迭代求解, 计算简单。

**关键词** [目标尺度](#) [自适应](#) [高斯滤波](#) [中值滤波](#)

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## Adaptive Gaussian filter based on object scale

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### Abstract

This paper proposes an adaptive Gaussian filter which combines the object scale that has morphological meaning and traditional linear Gaussian filter. Its main idea is: The variance and mask size of the Gaussian filter are controlled by the object scale. For resolving the problem that original algorithm of the object scale can not be applied to the denoising of visible light image very well, this paper first removes the strong noise points which interfere with the computation of the object scale greatly by using the median filter, then regulates the parameter of the algorithm of object scale. Experimental results show that the method can remove the noise while preserving the fine details. Both subjective and objective comparisons demonstrate that the method is superior than the several traditional image smoothing algorithms. In addition, the method does not require the iterative computation.

**Key words** [object scale](#) [adaptive](#) [Gaussian filter](#) [median filter](#)

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