

工程与应用

## Gabor滤波器组实现颅脑图像的边缘快速提取

张博书, 王明泉, 王 玉, 卢丽燕

中北大学 仪器科学与动态测试教育部重点实验室, 太原 030051

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**摘要** 在医学图像处理过程中, 针对一般方法提取颅脑图像边缘不是很清晰的情况, 提出了一种基于短时傅立叶变换的新的Gabor滤波方法。该方法通过选取一组能够覆盖整个频域的滤波器, 分别提取图像的局部边缘信息, 然后按照一定的规则将提取出局部信息的多幅图像整合成一幅图像。普通Gabor滤波计算量较大, 耗时较长, 而该文所述方法能显著地减少运算量。并且相对于其他几种滤波方法也表现出定位准确, 检测效果明显, 以及鲁棒性较好的特点。

**关键词** [Gabor滤波器组](#) [边缘提取](#) [颅脑MRI图像](#)

分类号

## Brain image edge rapid extraction based on Gabor filter banks

ZHANG Bo-shu, WANG Ming-quan, WANG Yu, LU Li-yan

The Ministry Education Key Lab for Instrumentation Science and Dynamic Test, North University of China, Taiyuan 030051, China

### Abstract

In the process of medical image processing, owing to brain MRI image edge extracted is not clear using common method, a new Gabor filter method is proposed based on short-term Fourier transform. In this method, a set of Gabor filters that can cover the entire frequency space for the given image are tuned, which is used to obtain the local information of the image, and then an accurate edge information can be developed by integrating this set of the Gabor filter outputs. Relative to the general Gabor method is computationally expensive and longer time-consuming, this method can observably reduce computational requirements. And it can detect the image edge efficiently and continuously and has excellent robustness.

**Key words** [Gabor filter banks](#) [edge extraction](#) [brain MRI image](#)

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通讯作者 张博书 [bolqshu@163.com](mailto:bolqshu@163.com)

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