

短文

## 用DOG函数进行边缘检测的硬件网络模型

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摘要

根据视觉计算理论,如果用一组不同大小的运算子对成象在视网膜上外界场景的二维图象进行光强度变化的检测可以获得原始图象的零交叉表象,即原始要素图.本文在讨论这一方法的基础上,提出了一种基于DOG函数的网络模型.模型满足了空间平移不变性,可实时并且平行地对输入信号进行边缘检测.模型中引入了时间维来构成尺度空间的零交叉表象的图谱,使得网络在简单有效的基础上实现.

关键词 [边缘检测](#) [DOG函数](#) [网络模型](#)

分类号

## An Electronic Network for Edge Detection Using Dog Operator Function

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Abstract

In computational vision, edge detection is an important step in visual information processing to represent the image. Along with rationalizing DOG (difference of Gaussians) function as a suitable edge detection operator in terms of localization in spacial/frequency domains, the regularization theory and the informational completeness, we proposed an electronic network model of edge detection. By adjusting network parameters, the system could detect zero-crossings of an image filtered through the  $\Delta 2G\lambda$ , the regularizational or psychophysical operators as DOG functions. The output of the network was a zero-crossing spectrum with time as the scale space dimension. The prospect of hardware network design is also discussed.

Key words [Edge detection](#) [DOG function](#) [network model](#)

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