

图形、图像、模式识别

改进的模糊CMAC神经网络

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摘要 提出了一种改进的模糊CMAC神经网络(IFCMAC), 该神经网络是在经典的FCMAC神经网络的模糊后相连层和输出层之间引入了输入矢量的线性加权来补偿逼近的误差, 所以它的逼近精度得到提高, 解决了CMAC系列神经网络逼近精度不高的弱点, 在颅脑磁共振图像分割仿真实验中, 把当前像素点的子图像的纹理特征和该像素点的灰度值作为该像素的特征向量, 将该特征向量作为IFCMAC神经网络的输入, 实验结果表明其具有较高的分割准确性。

关键词 [模糊小脑神经网络](#) [图像分割](#) [灰度共生矩阵](#) [磁共振图像](#)

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Improved fuzzy CMAC neural network

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Abstract

An improved fuzzy CMAC neural network, called IFCMAC, is presented. The difference between the classical FCMAC and IFCMAC is that linear weighted sum of input vector is introduced between fuzzy after connected layer and output layer to compensate for approximation error. Then its approximation accuracy is enhanced and the common fault of the series of CMAC neural network can be solved. In the simulation for the segmentation of the head magnetic resonance images, the gray value of the current pixel and texture features of neighborhood of the current pixel are used as the inputs for IFCMAC. The simulation also demonstrates that its effect of segmentation is better than the classical FCMAC.

Key words [Fuzzy Cerebella Model Articulation Controller \(CMAC\)](#) [image segmentation](#); [graycomatrix](#) [Magnatic Resonance Imaging \(MRI\)](#)

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