

工程与应用

基于人工神经网络的葡萄病害诊断专家系统

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摘要 设计了一种基于人工神经网络的葡萄病害诊断专家系统。以常见的18种主要的葡萄病害为研究对象, 将专家知识转换为诊断规则, 并作为学习样本输入神经网络进行训练, 形成神经网络推理机。同时, 采用知识库、规则推理和神经网络推理相结合的系统结构来优化专家系统, 在提高专家系统自学能力的同时也提高了系统的响应速度。采用C#、Matlab和.NET技术混合编程实现专家系统, 实验结果表明该系统有较高的诊断准确率并能稳定运行。该系统在Web上运行, 更有利于系统的推广应用。

关键词 [神经网络](#) [专家系统](#) [葡萄病害诊断](#)

分类号

Grape diseases diagnose expert system based on artificial neural network

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Abstract

This paper designs a kind of grape diseases diagnosis expert system based on artificial neural network. Eighteen main kinds of grape diseases as research objects are taken. The expert knowledge of them is converted into diagnosis rules which would be imported to artificial neural network for training, and formed into inference engine. Additionally, the expert system consists of knowledge database, rules inference and artificial neural network. It improves the self-learning capability and system real-time ability of expert system. The system is implemented by C# language, Matlab and .NET programming technology. The experiment results show that the system has higher diagnostic accuracy than traditional expert system. Moreover, the system can be accessed through web browser which will be good for popularization of it.

Key words [artificial neural network](#) [expert system](#) [grape diseases diagnose](#)

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