Literature Survey on Leaf disease diagnosis system

Sr No	Author Name	Title	Findings	Publisher
1	J. Woodford, Nikola K. Kasabov and C. Howard Wearing	Fruit Analysis Using Wavelets	Wavelet based image processing technique and neural network to develop a method of online identification of pest damage in pip fruit orchards plant.	Proceedings of the ICONIP/ANNES 1999
2	Ahsan Abdullah and Muhammad Umer	Application Of Remote Sensing In Pest Scouting: Evaluating Options And Exploring Possibilities	The possibilities for detecting chlorophyll effects by using various remote sensing techniques for acquisition of spectral image by satellite imagery, airborne images are discussed in this paper.	Proceedings of the 7th International Conference on Precision Agriculture and Other Precision Resources Management, USA, 2004
3	Yasser Abdelhamid, Mohammed El-Helly	A New Approach For Developing Diagnostic Expert Systems On Mobile Phones	Mobile phones are frequently referred to as "Constrained Computing Devices" for its limited processing, storage and display capabilities. This paper introduces a new diagnosis problem solving model based on analysis of the relations between symptoms and disorders in the form of certainty and severity factors. The paper also introduces a customized knowledge representation suitable for mobile phones limited capabilities using XML	Communications in Information Science and Management Engineering 2013
4	Di Cui, Oin Zhang, Minzan Li, Youfu Zhao and Glen L. Hartman	Detection Of Soybean Rust Using A Multispectral Image Sensor	A feasible method for detecting soybean rust and quantifying severity is explored in. The images of soybean leave with different rust severity were collected by using both multispectral Charge Coupled Device (CCD) camera and portable spectrometer. Three parameters i.e. ratio of infected area, lesion color index and rust severity index were extracted from the multispectral images and used to detect leaf infection	Sens. & Instrumen. Food Qual. 2009

			and severity of infection.	
5	Alexander A. Doudkin, Alexander V. Inyutin, Albert I. Petrovsky, Maxim E. Vatkin [2007]	Three Level Neural Network For Data Clusterization On Images Of Infected Crop Field	Neural network approach for segmentation of agricultural landed fields in remote sensing data is proposed here. A neural network algorithm based on backpropagation is used for segmentation of the color images of crop field. The morphological features of leaves are used for plant classification and in the early diagnosis of certain plant diseases	Journal of Research and Applications in Agricultural Engineering, Vol. 52(1), 2007
6	Dimitris Manolakis [2005]	Plant Leaves Classification Based On Morphological Features And Fuzzy Surface Selection Technique	Paper presents design and implementation of an artificial vision system which extracts specific geometric and morphological features from plant leaves. The proposed system consists of an artificial vision system (camera), a combination of image processing algorithms and feed forward neural network based classifier. A fuzzy surface selection technique for feature selection was used.	Proceedings of 11th International Conference on Computer and Information Technology 2008
7	Rakesh Kaundal, Amar S. Kapoor and Gajendra Raghava [2006]	Machine Learning Techniques In Disease Forecasting: A Case Study On Rice Blast Prediction	A prediction approach based on Support Vector Machines (SVM) for developing weather based prediction models of plant diseases is proposed by Rakesh and Amar.	*BMC Bioinformatics* 2006
8	M. S. Prasad Babu and B. Srinivasa Rao [2007]	Leaves Recognition Using Backpropagation Neural Network-Advice For Pest And Disease Control On Crops	Prasad Babu and Srinivasa Rao proposed back-propagation neural network for recognition of leaves. It was proved that just a backpropagation network is enough to specify the species of a leaf. It was reported that there is a scope for enhancement of this work which involves more experimentations with large	IndiaKisan.Net: Expert Advisory System. 2007

			training sets to recognize various leaves with pest or damaged leaves due to insects or diseases system	
9	Stephen Gang Wu, Forrest Sheng Bao, Eric You Xu, Yu Xuan Wang Yi Fan Chang [2007]	A Leaf Recognition Algorithm For Plant Classification Using Probabilistic Neural Network	This paper implements a leaf recognition algorithm using easy-to-extract features and high efficient recognition algorithm. A Probabilistic Neural Network (PNN) approach for plant leaf recognition is used. The features are extracted and processed by Principal Component Analysis (PCA) to form input to PNN	IEEE International Symposium on Signal Processing and Information Technology 2007
10	M. T. Maliappis, K. P. Ferentinos, H. C. Passam And A. B. Sideridis [2008]	Gims: A Web Based Greenhouse Intelligent Management System	This paper describes a system which introduces computer management into the cultivation process in low-tech greenhouse. It is used as a web based application. It can be used for identification of pests, diseases and nutritional disorders	World Journal of Agricultural Sciences Vol. 4 (5) 2008
11	Santanu Phadikar and Jaya Sil	Rice Disease Identification Using Pattern Recognition Techniques	Santanu and Jaya described a software prototype system for disease detection based on the infected images of various rice plants. They used image growing, image segmentation techniques to detect infected parts of the plants. Zooming algorithm is used to extract features of the images. Self Organize Maps (SOM) neural network is used for classifying diseased rise images.	Proceedings of 11th International Conference on Computer and Information Technology 2008
11	Weizheng S., Yachun W., Zhanliang C. and Hongda W.	Grading Method Of Leaf Spot Disease Based On Image Processing	In this paper fast and accurate novel method is developed which is based on image processing for grading of plant disease. They segmented leaf region using Otsu segmentation.	International Conference on Computer Science and Software Engineering 2008

			The plant diseases are graded by calculating the quotient of disease spot and leaf area.	
12	A.Meunkaewjinda, P. Kumsawat, K.Attakitmongcol and A. Srikaew	Grape Leaf Disease Detection From Color Imagery System Using Hybrid Intelligent System	Grape leaf disease is detected in from color imagery using hybrid intelligent system. They used SOM and backpropagation neural networks to recognize colors of grape leaf. This information is used to segment grape leaf pixels within the image. Then the grape leaf disease segmentation is performed using modified SOM with genetic algorithms for optimization and BP for classification	Proceedings of ECTI-CON 2008
13	Geng Ying, Li Miao, Yuan Yuan and Hu Zelin	A Study On The Method Of Image Pre-Processing For Recognition Of Crop Diseases	Ying studied methods of image pre-processing for recognition of crop diseases	International Conference on Advanced Computer Control 2008
14	Xinhong Zhang and Fan Zhang	Images Features Extraction Of Tobacco Leaves	Images features extraction is very important for the grading process of uncured tobacco leaves. A system based on machine vision techniques is proposed for the automatic inspection of uncured tobacco leaves. Machine vision techniques are used in this system to solve problems of features extraction and analysis of tobacco leaves, which include features of color, size, shape and surface texture. The experimental results show that this system is a viable way for the features extraction of tobacco leaves and can be used for the automatic classification of tobacco leaves	Congress on Image and Signal Processing 2008

15	Xu Pengyun and Li Jigang	Computer Assistance Image Processing Spores Counting	This paper presents a method to monitor plant disease caused by spores. The color image is first converted into gray image so as to carry the analysis and processing, such as histogram generation, the gray-level correction, image feature extraction, image sharpening and so on	International Asia Conference on Informatics in Control, Automation and Robotics 2009
16	Reza Ghaffari; Fu Zhang; Daciana Iliescu, Evor Hines; Mark Leeson, Richard Napier and John Clarkson	Early Detection of Diseases in Tomato Crops: An Electronic Nose and Intelligent Systems Approach	Sensor arrays also known as Electronic Noses (ENs) have been used to analyze the Volatile Organic Compounds (VOCs) of both healthy and infected tomato (Solanum lycopersicum) crops. Statistical and intelligent systems techniques were employed to process the data collected by an EN. Principal Component Analysis (PCA), K-Means clustering and Fuzzy C-Mean (FCM) clustering were applied to visualise any clusters within the dataset Furthermore, MultiLayer Perceptron (MLP), Learning Vector Quantization (LVQ) & Radial Basis Function(RBF) based Artificial Neural Network (ANNs) were used to learn to classify and hence categorize the datasets.	The International Joint Conference on Neural Networks (IJCNN),. IEEE, 2010.
17	W.S. Lee, V. Alchanatis, C. Yang, M. Hirafuji, D. Moshou, C. Li	Review: Sensing Technologies For Precision Specialty Crop Production	This paper presents a review of the sensing technologies and discusses how they are used for precision agriculture and crop management, especially for specialty crops. Some of the challenges and considerations on the use of these sensors and technologies for specialty crop production are also discussed.	Computers and Electronics in Agriculture 2010

18	M.A. Markom, A.Y. Md , Shakaff, A.H. Adom , M.N. Ahmad, Wahyu Hidayat, A.H. Abdullah, N. Ahmad Fikri	Intelligent Electronic Nose System For Basal Stem Rot Disease Detection	This paper presents a work conducted on utilizing an electronic nose incorporating artificial intelligence to detect plant disease, specifically basal stem rot (BSR) disease that is caused by *Ganoderma boninense* fungus affecting oil palm plantations in South East Asia. This study used a commercially available electronic nose, Cyranose 320, as the front end sensors and artificial neural networks for pattern recognition. The odour samples were captured on site at Besout oil palm plantation, Perak, Malaysia, and the classification performed on a PC. The results showed that the system was able to differentiate healthy and infected oil palm tree using different odour parameters with a high rate of accuracy	Computers and Electronics in Agriculture 2009
20	Luo Juhua, Huang Wenjiang, Guan Qingsong, Zhao Jinling, Zhang Jingcheng	Hyperspectral Image For Discriminating Aphid And Aphid Damage Region Of Winter Wheat Leaf	Past studies have demonstrated the potential of remote sensing for detecting diseases and insects damage. In the study, hyperspectral imaging in the visible and near-infrared (500-900nm) region was tried to determinate aphid of wheat leaf and detect damage region of winter leaf caused by aphid. The principal component analysis (PCA) and spectral indices which used to monitor some stresses were applied to extract aphid information.	IGARSS 2013

21	Wenjiang Huang, Qingsong Guan, Juhua Luo, Jingcheng Zhang, Jinling Zhao, Dong Liang, Linsheng Huang, and Dongyan Zhang	New Optimized Spectral Indices for Identifying and Monitoring Winter Wheat Diseases	The vegetation indices from hyper spectral data have been shown to be effective for indirect monitoring of plant diseases. However, a limitation of these indices is that they cannot distinguish different diseases on crops. Here development of new spectral indices NSIs) that would be useful for identifying different diseases on crops are identified. Three different pests (powdery mildew, yellow rust, and aphids) in winter wheat were used in this study. The new optimized spectral indices were derived from a weighted combination of a single band and a normalized wavelength difference of two bands. The most and least relevant wavelengths for different diseases were first extracted from leaf spectral data using the RELIEF-F algorithm.	IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing 2011
22	Chen Xi-Ai, Zhang Guang-Xin, Huang Ping Jie, Hou Di-Bo, Kang Xu-Sheng, Zhou Ze-Kui	Classification of the green tea varieties based on Support Vector Machines using Terahertz Spectroscopy	There are many varieties of green tea, although we can identify its quality grade by color, flavor and shape, it's very difficult to identify the varieties of green tea. Terahertz time-domain spectroscopy have been applied in research of four different varieties of Chinese green tea, the absorption and refractive Terahertz Spectrum of these tea were got in the range of 0.2 to 1.5 THz. Least Squares , Support Vector Machines, Naive Bayes and Back Propagation Artificial Neural Network were applied to achieve Multi-class classification of these four kinds of tea	Instrumentation and Measurement Technology Conference, IEEE (I2MTC), 2011

23	**A. Camargo, J.S. Smith**	**An Image-Processing Based Algorithm To Automatically Identify Plant Disease Visual Symptoms**	**This study describes an image-processing based method that identifies the visual symptoms of plant diseases, from an analysis of coloured images.** **The processing algorithm developed starts by converting the RGB image of the diseased plant or leaf, into the H, I3a and I3b color transformations. The I3a and I3b transformations are developed from a modification of the original I1I2I3 color transformation to meet the requirements of the plant disease data set.** **The transformed image is then segmented by analyzing the distribution of intensities in a histogram.** **Rather than using the traditional approach of selecting the local minimum as the threshold cut-off, the set of local maximums are located and the threshold cut-off value is determined according to their position in the histogram.** **This technique is particularly useful when the target in the image data set is one with a large distribution of intensities.**	**Biosystems engineering. 2009**