

REFERENCES

- Abdullah, M.Z., Mohamad-Saleh, J., Fathinul-Syahir, A.S. and Mohd-Azemi, B.M.N. (2006) Discrimination and classification of fresh-cut starfruits (*Averrhoa carambola* L.) Using automated machine vision system, *Journal of Food Engineering*, Vol. 76, No. 4, Pp. 506-523.
- Acton, S.T. and Mukherjee, D.P. (2000) Scale space classification using area morphology, *IEEE Trans. Image Process.*, Vol. 2, No. 4, Pp. 623–635.
- Agarwal, M. and Mostafa, J. (2011) Content-based Image Retrieval for Alzheimer’s Disease Detection, 9th International Workshop on Content-Based Multimedia Indexing (CBMI), Pp. 13 – 18.
- Ahlawat, V., Jhorar, O., Kumar, L. and Backhouse, D. (2011) Using hyperspectral remote sensing as a tool for early detection of leaf rust in blueberries, School of Environmental and Rural Science, University of New England, New South Wales, Australia, Pp. 1-4.
- Ahmed, M.N., Yamany, S.M. Mohamed, N., Farag, A.A. and Moriarty, T. (2002) A Modified Fuzzy C-Means Algorithm for Bias Field Estimation and Segmentation of MRI Data, *IEEE Trans. on Medical Imaging*, Vol. 21, Pp.193–199.
- Ahmed, M.N., Yamany, S.M., Mohamed, N., Farag, A.A. and Moriarty, T. (2002) A modified fuzzy C-means algorithm for bias field estimation and segmentation of MRI data, *IEEE Trans. Med. Imaging.*, Vol. 21, Pp. 193–199.
- Aleixos, N., Blasco, J., Navarron, R. and Molto, E. (2002) Multispectral inspection of citrus in real-time using machine vision and digital signal processors, *Computers and Electronics in Agriculture*, Vol. 33, No. 2, Pp. 121-137.
- Alfatni, M.S.M., Shariff, A.R.M., Shafri, H.Z.M., Saaed, O.M.B. and. Eshanta, O.M. (2008) Oil palm fruit bunch grading system using red, green and blue digital number, *Journal of Applied Sciences*, Vol. 8, No. 8, Pp. 1444-1452.
- Ali, I.H., AmarNishad, M.T. and Khaled, A.M.A. (2003) Development of a Neural Network Classifier for Date Fruit Varieties Using Some Physical Attributes, *Res. Bult., Agric. Res. Center, King Saud Univ.*, Vol. 126, Pp. 5-18.
- Ali, M.A., Dooley, L.S. and Karmakar, G.C. (2006) Object based segmentation using fuzzy clustering, *IEEE International Conference on Acoustics, Speech and Signal Processing*, Pp. 1-4.

- Alipasandi A., Ghaffari H. and Alibeyglu S.Z. (2013) Classification of three varieties of peach fruit using artificial neural network assisted with image processing techniques, *International Journal of Agronomy and Plant Production*, Vol. 4, No. 9, Pp. 2179-2186.
- Amadasun, M. and King, R. (1989) Textural Features Corresponding to Textural Properties, *IEEE Transactions on System, Man Cybernetics*, Vol. 19, No. 5, Pp. 1264-1274.
- Anantharatnasamy, P., Sriskandaraja, K., Nandakumar, V. and Deegalla, S. (2013) Fusion of Colour, Shape and Texture Features for Content Based Image Retrieval, 8th International Conference on Computer Science & Education (ICCSE), Pp. 422 – 427.
- Angeline, P.J. (1998) Using selection to improve particle swarm optimization, *IEEE Int. Conf. Computational Intelligence*, Pp.84–89.
- Arifin, A.Z. and Asano, A. (2006) Image segmentation by histogram thresholding using hierarchical cluster analysis, *Proc. of Pattern Recognition Letters*, Vol. 27, No. 13. Pp. 1515-1521.
- Babu, M.S.P. and Rao, B.S. (2010) Leaves recognition using back-propagation neural network-advice for pest and disease control on crops. Technical Report, Department of Computer Science and Systems Engineering, Andhra University, India.
- Bair, M.S. and Mol, P.M.A. (2011) Noise adaptive weighted switching median filter for removing high density impulse noise, *Proceedings Part III of First International Conference on Advances in Computing and Communications*, India, Springer-Verlag Berlin Heidelberg, Pp. 193-204.
- Balafar, M.A. (2014) Fuzzy C-mean based brain MRI segmentation algorithms, *Artificial Intelligence Review*, Vol. 41, Issue 3, Pp 441-449
- Balasubramani, K. and Marcus, K. (2013) A Comprehensive review of Artificial Bee Colony Algorithm, *International Journal of Computers & Technology*, Vol. 5, No. 1, Pp.15-28.
- Balogun, W.A., Salami, M.E., McCarthy, M.J., Mustafah, Y.M. and Aibinu, A.M. (2013) Intelligent Technique for Grading Tropical Fruit using Magnetic Resonance Imaging, *International Journal of Scientific & Engineering Research*, Vol. 4, Issue 7, Pp. 216-225.
- Baltsavias, E.P., Gruen, A. and Van Gool L. (editors) (2001) Automated Extraction of Man-Made Objects from Aerial and Space Images (III) A. A. Balkema Publishers, Lisse, The Netherlands.

- Bama, B.S., Harinie, T., Janani, C.I., Raju, S. and Abhaikumar, V. (2011) 3D Color Co-occurrence texture features as tool to evaluate quality of fruits, *Journal of Scientific and Industrial Research*, Vol 70, 2011, Pp. 912-917.
- Bamber, J.C. and Daft, C. (1986) Adaptive filtering for reduction of speckle in ultrasonic pulse-echo images, *Ultrasonics*, Pp. 41-44.
- Bandi, S.R., Varadharajan, A. and Chinnasamy, A. (2013) Performance evaluation of various statistical classifiers in detecting the diseased citrus leaves, *International Journal of Engineering Science and Technology*, Vol. 5, No. 2, Pp. 298-307.
- Barbu, T. (2014) Robust Anisotropic Diffusion Scheme for Image Noise Removal, *Procedia Computer Science*, Proceedings of Knowledge-Based and Intelligent Information & Engineering Systems 18th Annual Conference, Poland, Vol. 35, Pp. 522-530.
- Barni, M., Cappellini, V. and Mecocci, A. (1996) Comments on A possibilistic approach to clustering, *IEEE Trans on Fuzzy Systems*, Vol. 4, Pp. 393-396.
- Basu, A., Watters, C., and Shepherd, M. (2002) Support Vector Machines for Text Categorization, Dalhousie University, Halifax, Nova Scotia, Canada, Proceedings of the 36th Hawaii International Conference on System Sciences, Pp.43-49.
- Bennedsen, B.S., Peterson, D.L. and Tabb, A. (2007) Identifying Apple Surface Defects using Principal Components Analysis and Artificial Neural Networks, *Transactions of American Society of Agricultural and Biological Engineers*, Vol. 50, No. 6, Pp. 2257-2265.
- Berry, M.W. (2003) *Survey of Text Mining*, Springer-Verlag, New York.
- Berthold, M.R. and Hand, D.J. (1999) *Intelligent Data Analysis*. Springer-Verlag, Berlin, Germany.
- Bezdek, J. and Hathaway, R. (1994) Optimization of fuzzy clustering criteria using genetic algorithms, *Proc. of the IEEE Conf. on Evolutionary Computation*, Vol. 2, 589–594.
- Bezdek, J.C. (1981) *Pattern Recognition with Fuzzy Objective Function Algorithms*, New York, Plenum.
- Bezdek, J.C. (1974) Cluster validity with fuzzy sets, *J. Cybern.*, Vol. 3, Pp. 58–73.

- Bezdek, J.C., Hall, L.O. and Clarke, L.P. (1993) Review of MR Image Segmentation Techniques Using Pattern Recognition, *Med. Phys.*, Vol. 20, Pp. 1033–1048.
- Bhadouria, V. S., Ghoshal, D. and Siddiqi, A. H. (2014) A new approach for high density saturated impulse noise removal using decision-based coupled window median filter, *Signal, Image and Video Processing*, Vol. 8, No. 1, Pp. 71-84.
- Bhandarkar, S.M., Luo, X., Daniels, R.F. and Tollner, E.W. (2008) Automated planning and optimization of lumber production using machine vision and computed tomography, *IEEE Trans. Autom. Sci. Eng.*, Vol. 5, No. 4, Pp. 677–695.
- Bhupender, V. and Pandey, R. (2013) A video directional weighted median filter with adaptive threshold and colour correction, *IEEE International Conference on Intelligent Systems and Signal Processing (ISSP)* Pp. 72-76.
- Bhushan, N. (Adviser) (2013) Post harvest profile of mango, Government of India, Ministry of Agriculture, Department of Agriculture and Cooperation, Directorate of Marketing and Inspection, Branch Head Office, Nagpur, Pp. 1-141.
- Bin, Z., Lu, J., Yaguang, L. and Yang T.A. (2007) Gabor Feature-based Apple Quality Inspection using Kernel Principal Component Analysis, *Elsevier: Journal of Food Engineering*, Vol. 81, Pp. 741–749.
- Biswas, S. (2003) Segmentation based compression for gray level images, *Pattern Recognition*, Vol. 36, Issue 7, Pp. 1501–1517.
- Blasco, J., Aleixos, N and Moltó, E. (2003) Machine Vision System for Automatic Quality Grading of Fruit, *Biosystems Engineering*, Vol. 85, No. 4, Pp. 415-423.
- Blasco, J., Aleixos, N. and Moltó, E. (2003) Machine vision system for automatic quality grading of fruit. *Biosystems Engineering*, Vol. 85, No. 4, Pp. 415–423
- Blasco, J., Aleixos, N., Cubero, S., Juste, F., Gómez-Sanchis, J., Alegre, V. and Moltó, E. (2009) Recognition and Classification of External Skin Damage in Citrus Fruits using Multispectral Data and Morphological Features, *Elsevier: Biosystems Engineering*, Vol. 103, Pp.137–145.
- Blasco, J., Aleixos, N., Cubero, S., Juste, F., Gómez-Sanchis, J., Alegre, V. and Moltó, E. (2011) Computer vision developments for the automatic inspection of fresh and processed fruits, *Image Analysis for Agricultural Products and Processes*, Spain, Pp. 21-34.

- Blasco, J., Aleixos, N., Gómez, J. and Moltó, E. (2007) Citrus sorting by identification of the most common defects using multispectral computer vision, *Journal of Food Engineering*, Vol. 83, No. 3, Pp. 384-393.
- Boncellet, C. (2005). *Image Noise Models* Alan C. Bovik, *Handbook of Image and Video Processing*, Academic Press, ISBN 0121197921.
- Boonmung, S., Chomtee, B. and Kanlayasiri, K. (2006) Evaluation of artificial neural networks for pineapple grading, *Journal of Texture Studies*, Vol.37, No. 5, Pp.568–579.
- Bose, I., Mishra, D., Pradhan, B. and De, U.C. (2014) Fuzzy Approach to Detect and Reduce Impulse Noise in RGB Color Image, *International Journal of Scientific and Research Publications*, Volume 4, Issue 2, Pp. 1-6.
- Bouganis, A. and Shanahan, M. (2007) A vision-based intelligent system for packing 2-D irregular shapes, *IEEE Trans. Autom. Sci. Eng.*, Vol. 4, No. 3, Pp. 382–394.
- Bowd, C., Medeiros, F.A., Zhang, Z., Zangwill, L.M., Hao, J., Lee, T.W., Sejnowski, T.J., Weinreb, R.N. and Goldbaum, M.H. (2005) Relevance Vector Machine and Support Vector Machine Classifier Analysis of Scanning Laser Polarimetry Retinal Nerve Fiber Layer Measurements, *Invest Ophthalmol Vis Sci.*, Vol. 46, No. 4, Pp. 1322–1329.
- Bravo, C., Moshou, D., Oberti, R., West, J., McCartney, A., Bodria, L. and Ramon, H. (2004) Foliar Disease Detection in the Field using Optical Sensor Fusion, *Agricultural Engineering International: the CIGR Journal of Scientific Research and Development*, Vol. 6, Pp. 1-14.
- Breiman, L. Friedman, J.H., Olshen, R.A. and Stone, C.J. (2007) *Classification and Regression Trees*, Wadsworth, Belmont.
- Brosnan, T. and Sun, D.W. (2004) Improving quality inspection of food products by computer vision - A review, *Journal of Food Engineering*, Vol. 61, No. 1, Pp. 3-16.
- Brown, G., Pocock, A., Zhao, M.J. and Lujan, M. (2012) Conditional Likelihood Maximisation: A Unifying Framework for Information Theoretic Feature Selection, *Journal of Machine Learning Research (JMLR)* Vol. 13, Pp. 27–66.
- Butz, P., Hofmann, C. and Tauscher, B. (2005) Recent developments in noninvasive techniques for fresh fruit and vegetable internal quality analysis, *Journal of Food Science*, Vol. 70, No. 9, Pp. 131-141.

- Carrillo, E. and Peñaloza, A.A. (2009) Artificial vision to assure coffee-Excelso beans quality, EATIS, Czech Republic, Pp. 35-44.
- Castillo, O. and Melin, P. (2012) Particle Swarm Optimization in the Design of Type-2 Fuzzy Systems, Recent Advances in Interval Type-2 Fuzzy Systems, Springer Briefs in Applied Sciences and Technology, Vol. 1, Pp. 27-31.
- Catlett, J. (1991) Mega-induction: Machine Learning on Very Large Databases. PhD Thesis, University of Sydney.
- Cetişli, B. and Büyükçingir, E. (2013) Time Series Prediction of Apple Scab using Meteorological Measurements, Academic Journals: African Journal of Biotechnology, Vol. 12, No. 35, Pp. 5444-5451.
- Chan, K.C. and Stolfo, S.J. (1993a) Experiments on multistrategy learning by meta-learning, Proc. Second Intl. Conference on Info. and Knowledge Mgmt., Pp. 314-323.
- Chan, P.K. and Stolfo, S.J. (1993b) Meta learning for multistrategy and parallel learning, PTOC Second Intl. Workshop on Multistrategy Learning, Pp.150-165.
- Chang, I.S. and Park, R.H. (2001) Segmentation based on fusion of range and intensity images using robust trimmed methods, Pattern Recognition, Vol. 34, No. 10, Pp. 1952-1962.
- Chassangne-Berces, S., Fonseca, F., Citeau, M. and Marin, M. (2010) Freezing protocol effect on quality properties of fruit tissue according to the fruit, the variety and the stage of maturity, LWT - Food Science and Technology, Vol. 43, Issue 9, Pp. 1441-1449.
- Chatzis, S.P. and Varvarigou, T.A. (2008) A Fuzzy Clustering Approach Toward Hidden Markov Random Field Models for Enhanced Spatially Constrained Image Segmentation, IEEE Transactions on Fuzzy Systems, Vol. 16, No. 5, Pp. 1351-1361.
- Chen, B., Wang, K., Li, S., Wang, J., Bai, J., Xiao, C. and Lai, J. (2008) Spectrum Characteristics of Cotton Canopy Infected with Verticillium Wilt and Inversion of Severity Level, Proceedings of the Computer and Computing Technologies in Agriculture, Vol 2, Pp. 1169-1180.
- Chen, T. and Wu, H. R. (2001a) Space variant median filters for the restoration of impulse noise corrupted images, IEEE Transactions on Circuits and Systems II: Analog and Digital Signal Processing, Vol. 48, No. 8, Pp. 784-789.

- Chen, T. and Wu, H. R. (2001b) Adaptive impulse detection using center-weighted median filters, *Signal Processing Letters, IEEE*, Vol. 8, No.1, Pp. 1-3.
- Chen, Z., Qi, Z., Meng, F., Cui, L. and Shi, Y. (2015) Image segmentation via improving clustering algorithms with density and distance, *3rd International Conference on Information Technology and Quantitative Management, Procedia Computer Science*, Vol. 55, Pp. 1015-1022.
- Cheng, H., Jiang, X.H., Sun, Y. and Wang, J. (2001) Colour image segmentation: advances and prospects, *Pattern recognition*, Vol. 34, No. 12, Pp. 2259-2281.
- Cheng, Y. and Jafari, M.A. (2008) Vision-based online process control in manufacturing applications, *IEEE Trans. Autom. Sci. Eng.*, Vol. 5(1) 140–153.
- Chiang, H.C., Moses, R.L. and Potter, L.C. (2001) Model-based Bayesian feature matching with application to synthetic aperture radar target recognition, *Pattern Recognition*, Vol. 34, No. 8, Pp. 1539-1553.
- Chiu, Y.C. and Hsu, W.C. (2014) Study of the disease spot detection of cabbage using chlorophyll fluorescence, *American Society of Agricultural and Biological Engineers*, Paper No. 141894211, 2014 Montreal, Quebec Canada, Pp. 1-8.
- Choi, Y. H., Tapias, E. C., Kim, H. K., Lefeber, A. W. M., Erkelens, C., Verhoeven, J. T. J., Brzin, J., Zel, J. and Verpoorte, R. (2004) Metabolic Discrimination of *Catharanthus Roseus* Leaves Infected by *Phytoplasma* using ¹H-NMR Spectroscopy and Multivariate Data Analysis, *Plant Physiology*, Vol. 135, Pp. 2398-2410.
- Chuang, K.S., Long, T., Sharon, C., Wu, J. and Chen, T.J. (2006) Fuzzy C-means clustering with spatial information for image segmentation, *Computerized Medical Imaging and Graphics*, Vol. 30, Pp. 2-15.
- Cohen, L. (1989) Time-Frequency Distributions – A Review, *Proceedings IEEE*, Vol. 77, No. 7, Pp. 941-981.
- Cubero, E. (2012) *Diseño e Implementación de Nuevas Tecnologías Basadas en Visión Artificial para la Inspección no Destructiva de la Calidad de Fruta en Campo y Mínimamente Procesada*. 2012. 212p. Tesis (Tesis Doctoral)-Departamento de Expresión Gráfica Arquitectónica, Universidad Politécnica de Valencia. Valencia.
- Cubero, S., Aleixos, N., Moltó, E., Gómez-Sanchis, J. and Blasco, J. (2011) Advances in machine vision applications for automatic inspection and quality evaluation of fruits and vegetables. *Food and Bioprocess Technology*, Vol. 4, No. 4, Pp. 487-504.

- Cui, D., Zhang, Q., Li, M., Hartman, G.L. and Zhao, Y. (2010) Image processing methods for quantitatively detecting soyabean rust from multispectral images, *Biosystems Engineering*, Vol. 107, Pp.186-193.
- Das, S., Abraham, A. and Konar, A. (2008) automatic clustering using an improved differential evolution algorithm, *IEEE Transactions on Systems Man and Cybernetics Part A Systems and Humans*, Vol. 38, Issue 1, Pp. 218 - 237.
- Dave, R.N. and Krishnapuram, R. (1997) Robust Clustering Methods: A Unified View, *IEEE Transactions on Fuzzy Systems*, May, Vol 5, No. 2, PP. 270-293.
- Deck, S.H., Morrow, C.T., Heinemann, P.H. and Sommer III, H.J. (1995) Comparison of a neural network and traditional classifier for machine vision inspection of potatoes, *Applied Engineering in Agriculture*, Vol. 11, No. 2, Pp. 319-326.
- Definiens (2003) Definiens eCognition, <http://www.definiens-imaging.com>, Last Accessed During January, 2016.
- Deselaers, T., Keysers, D. and Ney, H. (2008) Features for image retrieval: An experimental comparison, *Information Retrieval*, Vol. 11, Pp. 77-107.
- Devi, C.N. and Pritamdas, K. (2014) Switching Median Filter Based on Iterative Clustering Noise Detection, *International Journal of Science and Research*, Vol. 3, Issue 1, PP. 202-206.
- Devi, V.P. and Vijayarekha, K. (2014) Machine vision applications to locate fruits, detect defects and remove noise: A review, *Rasayan J. Chem.*, Vol. 7, No. 1, Pp. 1-7.
- Dhas, G. and Suresh, C. (2014) Impulse Noise Removal using Optimal Direction Method with Fuzzy based Median Filter, *International Journal of Computer Applications*, Vol. 88, No. 5, Pp. 1-4.
- Doi, N., Shintani, A., Hayashi, Y., Ogihara, A. and Takamatsu, S. (1995) A study on mouth shape features suitable for HMM speech recognition using fusion of visual and auditory information, *IEICE Trans. Fundam.*, Vol. E78-A, No. 11, Pp. 1548-1552.
- Dong, Y. and Xu, S. (2007) A new directional weighted median filter for removal of random-valued impulse noise, *IEEE Signal Process. Lett.*, Vol. 14, No. 3, Pp. 193-196.
- Dongli, Z. (2012), An artificial bee colony optimization algorithm based on multi-exchange neighborhood, *Computational and Information Sciences (ICCIS)*, Pp.211-214.

- Du, K.L. (2010) Clustering: A neural network approach, *Neural Networks*, Vol. 23, Pp. 89-107.
- Dubey, S. R. (2012) Automatic Recognition of Fruits and Vegetables and Detection of Fruit Diseases, Master's theses, GLA University Mathura, India.
- Dubey, S. R. and Jalal, A. S. (2013) Species and Variety Detection of Fruits and Vegetables from Images, *International Journal of Applied Pattern Recognition*, Vol. 1, No. 1, Pp. 108 – 126.
- Dubey, S.R. and Jalal, A.S. (2012a) Robust Approach for Fruit and Vegetable Classification, *Procedia Engineering*, Vol. 38, Pp. 3449 – 3453.
- Dubey, S.R. and Jalal, A.S. (2012b) Detection and Classification of Apple Fruit Diseases using Complete Local Binary Patterns, *Proceedings of the 3rd International Conference on Computer and Communication Technology*, India, Pp. 346-351.
- Dubey, S.R. and Jalal, A.S. (2012c) Adapted Apple for Fruit Disease Identification using Images, *International Journal of Computer Vision and Image Processing (IJCVIP)* Vol. 2, Pp. 51 –65.
- Dubey, S.R. and Jalal, A.S. (2012d) Adapted Approach for Fruit Disease Identification using Images, *IJCVIP*, Vol. 2, No. 3, Pp. 44-58.
- Dubey, S.R., Dixit, P., Singh, N. and Gupta, J.P. (2013) Infected Fruit Part Detection using K-Means Clustering Segmentation Technique, *International Journal of Artificial Intelligence and Interactive Multimedia*, Vol. 2, No. 2, Pp. 65-72.
- Dunn, D. and Higgins, W. (1995) Optimal Gabor Filters for Texture Segmentation, *IEEE Trans. Image Processing*, Vol. 4, No. 7, Pp. 947-964.
- Dunn, J.C. (1973) A fuzzy relative of the ISODATA process and its use in detecting compact well-separated clusters, *J. Cybernetics*, Vol. 3, No. 3, Pp. 32-57.
- Eberhart, R. and Kennedy, I. (1995) A new optimizer using particle swarm theory, *Proceedings of Sixth International Symposium on Micro Machine and Human Science*, Pp. 39-43.
- Eirinaki, M. (2009) Web Mining: A Roadmap, Athens University of Economics and Business, <http://www.dbnet.aueb.gr/index.php/corporate/content/download/341/1381/file/NEMIS.pdf>.
- El-Naqa, I. (2002) A Support Vector Machine Approach for detection of micro calcifications, *IEEE transactions on medical imaging*, Vol. 21, No. 12, Pp. 1552-1563.

- Esakkirajan, S., Veerakumar, T., Subramanyam, A. N. and Premchand, C. H. (2011) Removal of high density salt and pepper noise through modified decision based unsymmetric trimmed median filter, *IEEE Signal Processing Letters*, Vol. 18, No. 5, Pp. 287-290.
- Esehaghbeygi, A., Ardforoushan, M., Monajemi, S.A.H. and Masoum, A.A. (2010) Digital Image Processing for Quality Ranking of Saffron Peach, *Int. Agrophysics*, Vol. 24, Pp.115-120.
- Esmin, A.A.A. (2007) Generating Fuzzy Rules from Examples Using the Particle Swarm Optimization Algorithm, *7th International Conference on Hybrid Intelligent Systems*, Pp. 340 – 343.
- Fan, J.L., Zhen, W.Z. and Xie, W.X. (2003) Suppressed fuzzy c-means clustering algorithm, *Pattern Recognition Letters*, Vol. 24, Pp. 1607- 1612.
- Farzinfar, M., Xue, Z. and Teoh, E.K, (2010) A novel approach for curve evolution in segmentation of medical images, *Comput. Med. Imaging Graph*, Vol. 34, No.5, Pp.354-361.
- Fathi, M., Mohebbi, M. and Razavi, S.M.A. (2011) Application of Image Analysis and Artificial Neural Network to Predict Mass Transfer Kinetics and Color Changes of Osmotically Dehydrated Kiwifruit, *Food Bioprocess Technology*, Vol. 4, Pp. 1357-1366.
- Fayyad, U.M., Piatetsky-Shapiro, G., Smyth, P. and Uthurusamy, R. (1996) *Advances in knowledge discovery and data mining*, AAAI Press and MIT Press, Menlo Park and Cambridge, MA, USA.
- Feng, Z., Yuqing, S. and Jianme, C. (2010) Fuzzy C-Means clustering for image segmentation using the adaptive spatially median neighborhood information, *Chinese Conference on Pattern Recognition*, PP. 1-5.
- Fernandez, C., Suardiaz, J., Jimenez, C., Navarro, P.J., Toledo, A. and Iborra, A. (2002) Automated visual inspection system for the classification of preserved vegetables , *Proceedings of the IEEE International Symposium on Industrial Electronics*, Vol. 1, Pp. 265-269.
- Flickner, M., Sawhney, H., Niblack, W., Ashley, J., Huang, Q., Dom, B., Gorkani, M., Hafner, J., Lee, D., Petkovic, D., Steele, D. and Yanker, P. (1995) Query by image and video content: the QBIC system, *IEEE Computer*, Vol. 28, Issue 9, (1995) Pp. 23-32.
- Garcfa-Ramos, F.J., Valero, C, Homer, I., Ortiz-Cafiavate, J. and Ruiz-Altisent, M. (2005) Non-destructive fruit firmness sensors: a review, *Spanish Journal of Agricultural Research*, Vol. 3, No. 1, Pp. 61-73.
- Garcia, H.C. and Villalobos, J.R. (2009) Automated refinement of automated visual inspection algorithms, *IEEE Trans. Autom Sci. Eng.*, Vol. 6, No. 3, Pp. 514–524.

- Garcia, H.C., Villalobos, J.R. and Runger, G.C. (2006) An automated feature selection method for visual inspection systems, *IEEE Trans. Autom. Sci. Eng.*, Vol. 3, No. 4, Pp. 394–406.
- Gaspar, P., Carbonell, J. and Oliveira, J.L. (2012) On the parameter optimization of Support Vector Machines for binary classification, *Journal of Integrative Bioinformatics*, Vol. 9, No. 3, Pp. 201-211.
- Gath, I. and Hoory, D. (1995) Fuzzy clustering of elliptic ring-shaped clusters, *Pattern Recognition Letters*, Vol. 16, No.7, Pp. 727-741.
- Ghaiwat, S.N. and Arora, P. (2014) Detection and Classification of Plant Leaf Diseases Using Image processing Techniques: A Review, Vol. 2, Issue 3, Pp. 1-7
- Gill, J., Sandhu, P.S. and Singh, T. (2014) Review of Automatic Fruit Classification using Soft Computing Techniques, *International Conference on Computer, Systems and Electronics Engineering*, Pp. 91-98.
- Goldberg, D.E. (2006) *Genetic Algorithms in Search, Optimization and Machine Learning*, Morgan Kaufmann.
- Gomes, J. F. S. and Leta, F. R. (2012) Applications of computer vision techniques in the agriculture and food industry: a review. *European Food Research and Technology*, Vol. 235, No. 6, Pp. 989-1000.
- Gonzalez, R.C. and Woods, R.E. (2007) *Digital Image Processing*, Pearson Prentice Hall.
- Gonzalo, R.A. (2005) *Non-linear signal processing - A Statistical Approach*, John Wiley & Sons Inc. Publications.
- Gool, L. V., Dewaele, P., and Qosterlinck, A. (1985) Texture analysis, anno. 1983, *Computer Vision Graphics and Image Processing*, Vol. 29, Pp. 336-357.
- Gruen, A., Baltsavias, E. and Henriesson O. (editors) (1997) *Automatic Extraction of Man-Made Objects from Aerial and Space Images (II)* Birkhaeuser Verlag, Basel, Switzerland.
- Gruen, A., Kuebler, O. and Agouris P. (editors) (1995) *Automatic Extraction of Man-Made Objects from Aerial and Space Images*, Birkhaeuser Verlag, Basel, Switzerland.
- Gunatilaka, A.H. and Baertlein, B.A. (2001) Feature-level and decision-level fusion of noncoincidently sampled sensors for land mine detection, *IEEE Trans. Pattern Anal. Mach. Intell.*, Vol. 23, No. 6, Pp. 577-489.
- Gupta, J. P., Singh, N., Dixit, P., Semwal, V. B. and Dubey, S.R. (2013) Human Activity Recognition using Gait Pattern, *International Journal of Computer Vision and Image Processing (IJCVIP)* Vol. 3, No. 3, Pp. 31-53.

- Gupta, S. and Devi, S. (2011) Modified PSO Algorithm with High Exploration and Exploitation Ability, *International Journal of Software Engineering Research & Practices* Vol.1, Issue 1, Pp. 15-19.
- Gupta, V., Gandhi, D. K. and Yadav, P. (2013) Removal of fixed value impulse noise using improved mean filter for image enhancement, *IEEE International Conference on Engineering*, Pp. 1-5.
- Guru, D.S., Mallikarjuna, P.B. and Manjunath, S. (2011) Segmentation and Classification of Tobacco Seedling Diseases, *COMPUTE '11 Proceedings of the Fourth Annual ACM Conference*, Pp. 1-8.
- Guruprasad, R and Behera, B.K. (2009) Automatic fabric inspection systems, *The Indian Textile Journal, Instrumentation and IT*, www.indiantextilejournal.com/articles/FAdetails.asp?id=2131, Last Accessed During January, 2016.
- Gustafson, D.E. and Kessel, W.C. (1979) Fuzzy clustering with a fuzzy covariance matrix, *Proceedings of IEEE Conference on Decision Control*, Pp. 761-766.
- Gutierrez, A., Blasco, J. and Molto, E. (2012) Physical Properties of Food - Novel Measurement, Techniques and Applications, *Contemporary Food Engineering Series, Chapter 1*, Da-Wen Sun (Series Editor) Ingacio Arana (Ed.) CRC Press, Pp. 1-22.
- Ha, J., Kim, G. and Choi, H. (2008) The Content-Based Image Retrieval Method Using Multiple Features, *Fourth International Conference on Networked Computing and Advanced Information Management*, 2008. NCM '08, Pp. 652 – 657.
- Hahn, F. (2009) Actual Pathogen Detection: Sensors and Algorithms—A Review, *Algorithms*, Vol. 2, No. 1, Pp. 301-338.
- Haidar, A., Dong, H. and Mavridis, N. (2012) Image-based date fruit classification, *Fourth International Congress on Ultra Modern Telecommunications and Control Systems*, Pp. 369-375.
- Hao, Y., Feng, X. and Xu, J. (2012) Multiplicative noise removal via sparse and redundant representations over learned dictionaries and total variation, *Signal Processing*, Science Direct, Vol. 92, Issue 6, Pp. 1536-1549.
- Haralick, R. (1979) Statistical and Structural Approaches to Texture, *Proc. IEEE*, Vol. 67, No. 5, Pp. 786-804.
- Haralick, R.M., Shanmugam, K. and Dinstein, I. (1973) Textural Features for Image Classification, *IEEE Trans. Systems, Man Cybernetics.*, Vol. 3, No. 6, Pp. 610– 621.
- Harker, R. (2009) Consumer preferences and choice of fruit: the role of avocado quality. *4th Australian and New Zealand Avocado Growers Conference*, Cairns, Queensland, Pp. 21–24.

- Hasnah, A., Yasmin, Y. and Puteh, S. (2005) Automatic classification of Weevil-Infested Harum Manis mangoes using artificial immune systems approach, First International Workshop on Artificial Life and Robotics, Pp.37-41.
- Hassan, S., Rajabipour, A., Jafary, A., Javadi, A. and Mostofi, Y. (2007) Classification and analysis of fruit shapes in long type watermelon using image processing, International Journal of Agriculture & Biology, Iran, Pp. 1-5.
- Hathaway, R.J. and Bezdek, J.C. (2006) Extending fuzzy and probabilistic clustering to very large data sets, Computational Statistics & Data Analysis, Vol. 51, Pp. 215–234.
- Hatsuda, H., Muramatsu, K., Aigaki, T. and Morishita, S. (2009) Robust and accurate recognition of veins in fruit fly wings, Proceedings of 6th International Symposium on Image and Signal Processing and Analysis, Pp.146,151.
- He, P. (2012) Fruit surface defects detection and classification based on attention model, Journal of Computational Information Systems, Vol. 8, No. 10, Pp. 4233–4240.
- Henry, Y.T.N., Grantham, K.H.P. and Nelson, H.C.Y. (2011) Automated fabric defect detection-A review, Image and Vision Computing, Vol. 29, Pp. 442-458.
- Hoppner, F., Klawonn, F., Kruse, R. and Runkler, T. (1999) Fuzzy Cluster Analysis: methods for classification, data analysis and image recognition, John Wiley & Sons, Ltd., New York.
- Hsieh, M.H., Cheng, F.C., Shie, M.C. and Ruan, S.J. (2013) Fast and efficient median filter for removing 1-99% levels of salt-and-pepper noise in images, Eng. Appl. Artif. Intell., Vol. 26, No. 4, Pp. 1333-1338.
- Hsu, Y. F. and Chen, Y. C. (1993) A new adaptive separable median filter for removing blocking effects, IEEE Transactions on Consumer Electronics, Vol. 39, No. 3, Pp. 510-513.
- <http://nhb.gov.in/fruits/mango/man013.pdf>, Last Accessed During January, 2016.
- http://www.apeda.gov.in/apedawebsite/SubHead_Products/Mango.htm, Last Accessed During January, 2016.
- <http://www.care2.com/greenliving/10-health-benefits-of-mangos.html>, Last Accessed During January, 2016.
- <http://www.eufic.org/article/en/artid/X-rays-in-food-inspection>

- <http://www.fruitprofits.com/ing/articulo.asp?reg=26>, Last Accessed During January, 2016.
- <http://www.imagefeatures.org/events>, Intelligent Image Feature Extraction in Knowledge Discovery Systems, Last Accessed During January, 2016.
- <http://www.unctad.info/en/Infocomm/AACP-Products/COMMODITY-PROFILE---Mango/>, Last Accessed During January, 2016.
- https://en.wikipedia.org/wiki/Relevance_vector_machine, Last Accessed During January, 2016.
- Huang, J., Kumar, S., Mitra, M., Zhu, W.J. and Zabih, R. (1997) Image indexing using colour correlogram, Proc. CVPR, Pp. 762-765.
- Hung, W. L., Yang, M. and Chen, D. (2005) Parameter selection for suppressed fuzzy c - means with an application to MRI segmentation, Pattern Recognition Letters, Vol. 5, Issue 5, Pp.424-438.
- International Trade Centre (2015) Fresh fruits & vegetables middle east, http://www.intracen.org/uploadedFiles/intracen.org/Content/Exporters/Market_Data_and_Information/Market_information/Market_Insider/Fruit_and_Vegetables/Middle%20East%20Fruits%20and%20Vegetables%20June%202015.pdf, Pp. 1-51.
- Iqbal, S., Ganesan, D. and SudhakaraRao, P. (2013) Mechanical System for On-line Fruits Sorting and grading using Machine Vision Technology, J. Instrum. Soc. India 34 (3) 153-162.
- Jafari, A., Zarezadeh, M.R. and Fazayeli, A. (2012) Orange Grading Based on Visual Texture Features, International Conference of Agricultural Engineering (CIGR-AGENG 2012), Spain, Pp. 21-26.
- Jain, A.K. and Dubes, R.C. (1988) Algorithms for Clustering Data, Englewood Cliff, NJ, Prentice Hall.
- Jain, A.K. and Vailaya, A. (1996) Image retrieval using colour and shape, Pattern Recognition, Vol. 29, No. 8, Pp. 1233-1244.
- Jain, V.K. and Saxena, A.K. (2013) Survey of image segmentation and classification using Markov Random Field, International Journal of Compute Science Engineering and Information Technology Research, Vol. 3, Issue 4, Pp. 47-56.
- James, M.(1985) Classification Algorithms, John Wiley Publications.
- Jamil, N., Mohamed, A. and Abdullah, S. (2009) Automated Grading of Palm Oil Fresh Fruit Bunches (FFB) using Neuro-Fuzzy Technique, International Conference of Soft Computing and Pattern Recognition, Pp. 245-249.

- Janardhana, S., Jaya, J., Sabareesan, K.J. and George, J. (2013) Computer aided inspection system for food products using machine vision — A review, International Conference on Current Trends in Engineering and Technology (ICCTET) Pp.29-33,
- Janik, L.J., Cozzolino, D., Damberg, R., Cynkar, W. and Gishen, M. (2007) The prediction of total anthocyanin concentration in red-grape homogenates using visible-near-infrared spectroscopy and artificial neural networks, *Analytica Chimica Acta*, Vol. 594, No. 1, Pp. 107–118.
- Janobi, A. (1998) Color line scan system for grading date fruits, ASAE Annual International Meeting, Orlando, Florida, USA, Pp. 1-4.
- Jiron, L. F. and Hedström I. (1985) Pollination Ecology of Mango (*Mangifera indica* L) (*Anacardiaceae*) in the Neotropic Region, Turrialba. Vol. 35, Pp. 269-277.
- Jubair, M.I. and Dey, M. (2012) An Enhanced Adaptive Vector Median Filtering Technique to Remove High Density Salt-and-Pepper Noise from Microarray Image, *International Journal of Computer Applications*, Vol. 45, No. 13, Pp. 23-26.
- Judith, G.J. and Kumarasabapathy, N. (2011) Study and analysis of impulse noise reduction filters, *Signal & Image Processing : An International Journal*, Vol. 2, No. 1, Pp. 82-92.
- Julesz, B. (1975) Experiments in the Visual Perception of Texture, *Scientific American*, Vol. 232, No. 4, Pp. 34-43.
- Kader, A.A. (2002) Post Harvest Technology of Horticultural Crops, UC ANR Publications, Davis, USA.
- Kalavathy, S. and Suresh, R.M. (2011) A Switching Weighted Adaptive Median Filter for Impulse Noise Removal, *International Journal of Computer Applications*, Vol. 28, No.9, Pp.8-13.
- Kaliraj, G. and Baskar, S. (2010) An efficient approach for the removal of impulse noise from the corrupted image using neural network based impulse detector, *Image and Vision computing*, Vol. 28, Issue 3, Pp. 458-466.
- Kang, C.C. and Wang, W.J. (2009) Modified switching median filter with one more noise detector for impulse noise removal, *International Journal of Electronic Communications*, Vol. 63, Pp. 998-1004.
- Kang, J., Min, L., Luan, Q., Li, X. and Liu, J. (2009) Novel modified fuzzy c-means algorithm with applications, *Digital Signal Processing*, Vol 12, No. 2, Pp. 302-312.
- Kao, O. (2001) Modification of the LULU operators for preservation of critical image details, *International Conference on Imaging Science, Systems and Technology*, Las Vegas, Pp. 1-7.

- Karvelis, P.S., Tzallas, A.T., Fotiadis, D.I. and Georgiou, I. (2008) A Multichannel Watershed-Based Segmentation Method for Multispectral Chromosome Classification, *IEEE Transactions on Medical Imaging*, Vol. 27, Issue 5, Pp. 697 - 708
- Katyal, V. and Srivastava, D.(2012) Efficient Fruit Defect Detection and Glare removal Algorithm by anisotropic diffusion and 2D Gabor filter, *Computer Vision and Pattern Recognition*, Vol. 2, Issue 2, Pp. 352-357.
- Kavdir, Ü. and Guyer, D.E. (2003) Apple Grading using Fuzzy Logic, *Turk J. Agric. For.*, Vol. 27, Pp. 375-382.
- Kennedy, J. and Spears, W.M. (1998) Matching algorithms to problems: An experimental test of the particle swarm and some genetic algorithms on the multi-modal problem generator, *IEEE World Congr. Computational Intelligence*, Pp. 78–83.
- Kerruish, R.M. and Walkington, A.L. (2006) *Plant Protection 4 - How to diagnose plant problems*, RootRot Press ACT, Australia.
- Khalid, M.A. and Tamer, A.A.A. (2012) Date Fruits Classification using MLP and RBF Neural Networks, *International Journal of Computer Applications*, Vol. 41, No. 10, Pp. 36-41.
- Khojastehnazhand, M., Omid, M. and Tabatabaeefar, A. (2010) Development of a lemon sorting system based on colour and size, *African Journal of Plant Science*, Vol. 4(4), Pp. 122-127.
- Khoje, S. and Bodhe, S. (2013) Comparative performance evaluation of size metrics and classifiers in computer vision based automatic mango grading, *International Journal of Computer Applications*, Vol. 61, No. 9, Pp. 1-7.
- Khoje, S.A., Bodhe, S.K. and Adsul, A. (2013) Automated Skin Defect Identification System for Fruit Grading Based on Discrete Curvelet Transform, *International Journal of Engineering and Technology*, Vol 5, No 4, Pp.3251-3256.
- Khoshroo, A., Keyhani, A., Zoroofi, R.A., Rafiee, S., Zamani. Z. and Alsharif, M.R. (2009) Classification of Pomegranate Fruit using Texture Analysis of MR Images, *Agricultural Engineering International: CIGR Journal*, Vol. XI, Pp.1-12.
- Kim, D.G., Burks, T.F., Qin, J. and Bulanon, D.M. (2009) Classification of Grapefruit Peel Diseases using Color Texture Feature Analysis, *International Journal of Agric & Biol Eng.*, Vol. 2 No.3, Pp. 41-50.
- Kim, S., Bae, H., Cheon, S.P. and Kim, K.B. (2005) Online fabric-defects detection based on wavelet analysis, *Proceedings of the International conference on computational science and its applications (ICCSA) Lecture notes in computer science*, Vol. 3483, Pp. 1075-1084.

- Kleynen, O., Leemans, V. and Destain, M. F. (2005) Development of a Multi-Spectral Vision System for the Detection of Defects on Apples. *Journal of Food Engineering*, Vol. 69, Pp. 41-49.
- Kodagali, J.A. and Balaji, S. (2012) Computer vision and image analysis based techniques for automatic characterization of fruits – A review, *International Journal of Food Science & Technology*, Vol. 2, Issue 2, Pp. 1-14
- Koley, T.K., Kaur, C., Nagal, S., Walia, S., Jaggi, S. and Sarika, S. (2011) Antioxidant activity and phenolic content in genotypes of Indian jujube (*Zizyphus mauritiana* Lamk.) *Arabian Journal of Chemistry*, Elsevier Publication, Pp. 1-12.
- Koley, T.K., Singh, S., Khemariya, P., Sarkar, A., Kaur, C., Chaurasia, S.N.S. and Naik, P.S. (2014) Evaluation of bioactive properties of Indian carrot (*Daucus carota* L.): A chemometric approach, *Food Research International*, Vol. 60, Pp. 76-85.
- Kotsiantis, S.B. (2007) Supervised Machine Learning: A Review of Classification Techniques , *Informatics*, Vol. 31, Pp. 249-268.
- Kotsiantis, S.B., Zaharakis, I.D. and Pintelas, P.E. (2006) Machine learning: a review of classification and combining techniques, *Artif. Intell. Rev.*, Vol. 26, Pp. 159–190
- Krishnapuram, R. and Keller, J. M. (1993) A possibilistic approach to clustering, *IEEE Transactions on Fuzzy Systems*, Vol. 1, No. 2, Pp. 98–110.
- Kumar, A., Lee, W.S., Ehsani, R.J., Albrigo, G.L., Yang, C. and Mangan, R.L. (2012) Citrus greening disease detection using aerial hyperspectral and multispectral imaging techniques, *Journal of Applied Remote Sensing*, Vol. 6, Issue 1, Article ID 063542, Pp. 1-8.
- Kumar, S. and Srinivas, R. (2013) A study on image segmentation and its methods, *International Journal of Advanced Research in Computer Science and Software Engineering*, Vol. 3, Issue 9, Pp. 1112-1114.
- Kwee, L.T. and Chong, K.K. (1985) Diseases and disorders of Mango in Malaysia, Tropical Press, SDN BHD, Kuala Lumpur.
- Kwok, N.M., Ha, Q.P., Liu, D. and Fang, G. (2009) Contrast enhancement and intensity preservation for gray-level images using multiobjective particle swarm optimization, *IEEE Trans. Autom. Sci. Eng.*, Vol. 6, No. 1, Pp. 145–155.
- Kwon, M.J., Han, Y.J., Shin, I.H. and Park, H.W. (2003) Hierarchical Fuzzy Segmentation of Brain MR Images, *International Journal of Imaging Systems and Technology*, Vol. 13, Pp. 115–125.

- Lak, M.B., Minei, S., Amiriparian, J. and Beheshti, B. (2010) Apple Fruits Recognition Under Natural Luminance Using Machine Vision, *Advance Journal of Food Science and Technology*, Vol. 2, No.6, Pp. 325-327.
- Lee, D.J., Archibald, J.K. and Xiong, G. (2010) Rapid Colour Grading for Fruit Quality Evaluation Using Direct Colour Mapping, *IEEE Transactions on Automation Science and Engineering*, Vol. 8, No. 2, Pp. 292-302,.
- Leemans, V. and Destain, M.F. (2004) A real-time grading method of apples based on features extracted from defects, *Journal of Food Engineering*, Vol. 61, No. 1, Pp. 83-89.
- Leemans, V., Magein, H. and Destain, M. F. (1998) Defect Segmentation on ‘Golden Delicious’ Apples by using Color Machine Vision, *Computers and Electronics in Agriculture*, Vol. 20, Pp.117-130.
- Leemans, V., Magein, H. and Destain, M. F. (1999) Defect Segmentation on ‘Jonagold’ Apples using Color Vision and a Bayesian Classification Method, *Computers and Electronics in Agriculture*, Vol. 23, Pp.43-53.
- Leemans, V., Magein, H. and Destain, M.F. (2002) Automation and Emerging Technologies: On-line Fruit Grading according to their External Quality using Machine Vision, *Biosystems Engineering*, Vol. 83, No. 4, Pp. 397-404.
- Leiva-Valenzuela, G.A. and Aguilera, J.M. (2013) The automatic sorting using image processing improves postharvest blueberries storage quality, *Food Control*, Vol. 33, Pp. 166-173.
- Levine, M.D. (1985) *Vision in Man and Machine*, McGraw-Hill.
- Li, B.N., Chui, C.K., Chang, S. and Ong, S.H. (2011) Integrating spatial fuzzy clustering with level set methods for automated medical image segmentation, *Computers in Biology and Medicine*, Vol. 41, No. 1, Pp. 1-10.
- Li, C., Zhou, J., Kou, P. and Xiao, J. (2012) A novel chaotic particle swarm optimization based fuzzy clustering algorithm. *Neurocomputing*, Vol. 83, Pp. 98-109
- Li, Q., Wang, M. and Gu, W. (2002, November) Computer Vision Based System for Apple Surface Defect Detection. *Computers and Electronics in Agriculture*, Vol.36, 215-223.
- Li, X., Li, L., Lu, H., Chen, D. and Liang, Z. (2003) Inhomogeneity Correction for Magnetic Resonance Images with Fuzzy C-Mean Algorithm, *Proc. SPIE Int. Soc. Opt. Eng.*, Vol. 5032, Pp. 995–1005.

- Lichun, K., Bin, L. and Jin, Y. (2009) Classifications of Image Features: A Survey, African Journals Online (AJOL) Vol 21, No. 1-2, Pp. 1-21.
- Liming, X. and Yanchao, Z. (2010) Automated strawberry grading system based on image processing, Computers and Electronics in Agriculture, Vol. 71, No. 1, Pp. S32-S39.
- Lin, T. C., Lin, C. M., Liu, M. K. and Yeh, C. T. (2014) Partition-based fuzzy median filter based on adaptive resonance theory, Computer Standards & Interfaces, Vol. 36, No. 3, Pp. 631-640.
- Lippmann, R. (1987) An introduction to computing with neural nets. IEEE ASSP Magazine, Vol. 4, No. 22, Pp. 1-2.
- Liu, X.U. and Nixon, M.S. (2007) Image and volume segmentation by water flow, Proceedings of the 3rd International Conference on Advances in visual computing, Lake Tahoe, NV, USA.
- Liu, C.J. and Wechsler, H. (2001) A shape- and texture-based enhanced Fisher classifier for face recognition, IEEE Trans. Image Process., Vol. 10, No. 4, Pp. 598-608.
- Liu, W.J.L. (2010) A clustering algorithm FCM-ACO for supplier base management, Lecture Notes in Computer Science including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics, 6440 LNAIPART 1, Pp. 106-113.
- Liu, Y. (2015) Image Denoising Method based on Threshold, Wavelet Transform and Genetic Algorithm, International Journal of Signal Processing, Image Processing and Pattern Recognition, Vol. 8, No. 2. Pp. 29-40.
- Llobet E., Hines E.L., Gardner J.W. and Franco S. (1999) Non-Destructive banana ripeness determination using a neural network-based electronic nose, Measurement Science and Technology, Vol.10, No.6, Pp.538–548.
- Logeswari, T. and Karnan, M. (2010) An Enhanced Implementation of Brain Tumor Detection Using Segmentation Based on Soft Computing, International Conference on Signal Acquisition and Processing, Pp. 243-247.
- Lorente, D., Aleixos, N., Gomez-Sanchis, J., Cubero, S., Garcia-Navarrete, O. and Blasco, J. (2012) Recent advances and applications of hyperspectral imaging for fruit and vegetable quality assessment, Food and Bioprocess Technology, Vol. 5, No. 4, Pp. 1121-1142.
- Lu, D. and Weng, Q. (2007) A survey of image classification methods and techniques for improving classification performance, International Journal of Remote Sensing, Vol. 28, No. 5, Pp. 823–870.

- Lu, H., Zheng, H., Hu, Y., Lou, H. and Kong, X. (2011) Bruise detection on red bayberry (*Myrica rubra* Sieb. & Zucc.) using fractal analysis and support vector machine, *Journal of Food engineering*, Vol. 104. No. 1, Pp. 149-153.
- Lu, J., Jiang, H. and Cui, D. (2014) Diseased leaves using texture and leaf vein features in fluorescence image, Paper number 141894250, 2014 Montreal, Quebec Canada, Pp. 1-8.
- Lu, Y., Ma, T., Yin, C., Xie, X. and Tian, W.(2013) Implementation of the Fuzzy C-Means Clustering Algorithm in Meteorological Data, Vol. 6, No. 6, Pp. 1-18.
- Lua, Q., Tang, M., Cai, J. and Lu, J. (2010) Long-term prediction of Zhonghua kiwifruit dry matter by near infrared spectroscopy, *ScienceAsia*, Vol. 36, Pp. 210-215.
- Lukac, R. (2004) Adaptive color image filtering based on centerweighted vector directional filters, *Multidimensional Systems and Signal Processing*, Vol. 15, Pp. 169-196.
- Lung, K. (2005) A cluster validity index for fuzzy clustering, *Pattern Recognition Letters*, Vol. 25, Pp. 1275-1291.
- Majidi, B. and Moshiri, B. (2003) Industrial assessment of horticultural products' quality using image data fusion, *Proceedings of the Sixth International Conference of Information Fusion*, Vol. 2, Pp. 868-873 .
- Mak K. L. and Peng P. (2008) An automated inspection system for textile fabrics based on Gabor filters, *Robotics and Computer-Integrated Manufacturing*, Vol. 24, No. 3, Pp. 359-369.
- Man, Y. and Gath, I. (1994) Detection and separation of ring shaped clusters using fuzzy clustering, *IEEE Transaction on Pattern Analysis and Machine Intelligence*, Vol. 16, No. 8, Pp. 855-861.
- Mangai, U.G., Samanta, S., Das, S. and Chowdhury, P.R. (2010) A Survey of Decision Fusion and Feature Fusion Strategies for Pattern Classification, *IETE Tech Rev 2010*;Vol. 27, Pp. 293-307
- Mango Defect Guide (2014) http://www.daff.qld.gov.au/__data/assets/pdf_file/0019/70093/Mango-Defect-Guide.pdf, Last Accessed During January, 2016.
- Manikandan, S., Uma Maheswari, O. and Ebenezer, D. (2004) Adaptive length Recursive weighted median filter with improved performance in impulsive noisy environment, *WSEAS transaction on Electronics*, Vol.1, Issue 3, Pp. 443-448.

- Marcus, N., Intani, K., Mahayothee, B., Sardud, V. and Müller, J. (2012) Non-destructive mango quality assessment using image processing: inexpensive innovation for the fruit handling industry, Conference on International Research on Food Security, Natural Resource Management and Rural Development organised by Georg-August Universität Göttingen and University of Kassel-itzenhausen, Pp. 1-4.
- Materka, A. and Strzelecki, M. (1998) Texture Analysis Methods – A Review, Technical University of Lodz, Institute of Electronics, COST B11 report, Brussels.
- Maulik, U. and Saha, I. (2010) Automatic fuzzy clustering using modified differential evolution for image classification, IEEE Transactions on Geoscience and Remote Sensing, Vol. 48, Issue 9, Pp. 3503 - 3510.
- May, Z. and Amaran, M.H. (2011) Automated Oil Palm Fruit Grading System using Artificial Intelligence, International Journal of Video & Image Processing and Network Security, Vol. 11, No. 03, Pp. 21-28.
- Mazouzi, S. and Batouche, M. (2008) Range Image Segmentation Improvement by Fuzzy Edge Regularization, Proc. of Information Technology Journal, Vol. 7, No. 1, Pp. 84- 90.
- Mehl, P. M., Chao, K., Kim, M. and Chen, Y. R. (2002) Detection of Defects on Selected Apple Cultivars using Hyperspectral and Multispectral Image Analysis. Applied Engineering in Agriculture, Vol. 18, 219-226.
- Mélange, T., Nachtegaël, M. and Kerre, E.E. (2011) Fuzzy Random Impulse Noise Removal From Color Image Sequences, IEEE Transactions on Image Processing, Vol. 20, Issue 4, Pp. 959-970.
- Menze BH, Jakab A, Bauer S, Kalpathy-Cramer J, Farahani K, Kirby J, Burren Y, Porz N, Slotboom J, Wiest R, Lanczi L, Gerstner E, Weber MA, Arbel T, Avants BB, Ayache N, Buendia P, Collins DL, Cordier N, Corso JJ, Criminisi A, Das T, Delingette H, Demiralp Ç, Durst CR, Dojat M, Doyle S, Festa J, Forbes F, Geremia E, Glocker B, Golland P, Guo X, Hamamci A, Iftekharuddin KM, Jena R, John NM, Konukoglu E, Lashkari D, Mariz JA, Meier R, Pereira S, Precup D, Price SJ, Raviv TR, Reza SM, Ryan M, Sarikaya D, Schwartz L, Shin HC, Shotton J, Silva CA, Sousa N, Subbanna NK, Szekeley G, Taylor TJ, Thomas OM, Tustison NJ, Unal G, Vasseur F, Wintermark M, Ye DH, Zhao L, Zhao B, Zikic D, Prastawa M, Reyes M, Van Leemput K. (2014) The Multimodal Brain Tumor Image Segmentation Benchmark (BRATS), IEEE Trans Med Imaging, Vol. 34, No. 10, Pp. 1993-2024.

- Mercol, J.P., Gambini, J. and Santos, J.M. (2008) Automatic classification of oranges using image processing and data mining techniques, Workshop de Agentes y Sistemas Inteligentes (WASI), Pp. 1-12.
- Michael, T.E. (2001) Sparse Bayesian Learning and the Relevance Vector Machine, *Journal of Machine Learning Research*, Vol. 1, Pp. 211–244.
- Miller, B.K. and Delwiche, M.J. (1989) A color vision system for peach grading, *Trans. ASAE*, Vol. 32, No. 4, Pp. 1484–1490.
- Mirzaei H. and Saraee, M.(2007) A New and Robust Apple Evaluation Method using Image Processing, *First Joint Congress on Fuzzy and Intelligent Systems*, Pp. 1-6.
- Mittal, G.S, (Ed.) (1997) Majumdar, Chapter 7, Image processing in food process control, *Computerized Control Systems in the Food Industry*, Pp. 207-234.
- Mohammad, J.M., Soheila, K., Hoseinpour, F.R. and Mahdi, J. (2011) An effective adaptive technique for impulse noise detection and reduction in digital images, *Proceedings of 2011 11th International Conference on Hybrid Intelligent Systems (HIS)* , Pp. 217-222.
- Moredaa, G.P., Ortiz-Cañavatea, J., García-Ramosb,F.J. and Ruiz-Altisenta, M. (2009) Non-destructive technologies for fruit and vegetable size determination – A review, *Journal of Food Engineering*, Vol. 92, Issue 2, Pp. 119-136.
- Moshou, D., Bravo, C., Oberti, R., West, J, S., Ramon, H., Vougioukas, S. and Bochtis, D (2011) Intelligent multi-sensor system for the detection and treatment of fungal diseases in arable crops, *Biosystems Engineering*, Vol. 18, Pp. 311-321.
- Moshou, D., Bravo, C., Oberti, R., West, J., Bodria, L., McCartney, A. and Ramon, H. (2005) Plant Disease Detection Based on Data Fusion of Hyper-Spectral and Multi-Spectral Fluorescence Imaging using Kohonen Maps, *Real-Time Imaging*, Vol. 11, No. 2, Pp. 75-83.
- Moshou, D., Bravo, C., Wahlen, S., West, J., McCartney, A., De, J., Baerdemaeker, J. D. and Ramon, H. (2006) Simultaneous Identification of Plant Stresses and Diseases in Arable Crops using Proximal Optical Sensing and Self-Organising Maps, *Precision Agriculture*, Vol. 7, No. 3, Pp. 149-164.
- Motevali, A., Minaei, S., Khoshtaghaza, M.H., Kazemi, M. and Nikbakht, A.M. (2010) Drying of pomegranate arils: comparison of predictions from mathematical models and neural networks, *International Journal of Food Engineering*, Vol. 3, Issue 6, Pp.1-20.

- Mukhopadhyay, S. and Mandal, J.K. (2014) A Fuzzy Switching Median Filter of Impulses in Digital Imagery (FSMF), *Circuits Syst. Signal Process.*, Vol. 33, No. 7, Pp. 2193-2216.
- Nakano, K. (1997) Application of neural networks to the colour grading of apples, *Computers and Electronics in Agriculture*, Vol. 18, No. 2-3, Pp. 105-116.
- Nakasone, H.Y. and Paull, R.E. (1998) *Tropical and subtropical fruits*, CAB International, London.
- Nandi, C.S., Tudu, B. and Koley, C. (2012) An automated machine vision based system for fruit sorting and grading, *Sixth International Conference on Sensing Technology (ICST)* Pp.195-200.
- Ng, P.E. and Ma, K.K. (2006) A Switching Median Filter With Boundary Discriminative Noise Detection for Extremely Corrupted Images, *IEEE Transactions on Image Processing*, Vol. 15, No. 6, Pp. 1506–1516
- Ngan, H.Y.T. and Pang, G.K.H. (2009) Regularity analysis for patterned texture inspection, *IEEE Transactions on Automation Science and Engineering*, Vol. 6, No.1, Pp. 131–144.
- Nicolai, B.M., Beullens, K., Bobelyn, E., Hertog, M.L.A.T.M., Schenk, A., Vermeir, S. and Lammertyn, J (2006) Systems to characterize internal quality of fruit and vegetables, *Proceedings of the IVth International Conference on Managing Quality in Chains - the Integrated View on Fruits and Vegetables Quality. Acta Horticulturae*, Vol. 712, Pp. 59-65.
- Njoroge, J.B., Ninomiya, K., Kondo, N. and Toita, H. (2002) *Automated Fruit Grading System Using Image Processing. SICE IEEE*, Los Alamitos, Cal., USA.
- O'zdemir, D. and Akarun, L. (2002) A fuzzy algorithm for color quantization of images, *Pattern Recognition*, Vol. 35, Pp. 1785–1791.
- Ohali, Y.A. (2011) Computer vision based date fruit grading system: Design and implementation, *Journal of King Saud University - Computer and Information Sciences*, Vol. 23, No. 1, Pp. 29-39.
- Opara, L.U. (2007) Bruise susceptibilities of ‘Gala’ apples as affected by orchard management practices and harvest date, *Postharvest Biol. Technol.*, Vol. 43, Pp. 47–54.
- Ou, P. and Wang, H. (2010) Predict GARCH Based Volatility of Shanghai Composite Index by Recurrent Relevant Vector Machines and Recurrent Least Square Support Vector Machines, *Journal of Mathematics Research*, Vol. 2, No. 2, Pp. 11-19.

- Ouadfel, S. and Meshoul, S. (2012) Handling fuzzy image clustering with a modified ABC algorithm, I.J. Intelligent Systems and Applications, Vol. 12, Pp. 65-74
- Padmavathi, K. (2012) Investigation and monitoring for leaves disease detection and evaluation using image processing, International Research Journal of Engineering Science, Technology and Innovation , Vol. 1, No. 3, Pp. 66-70.
- Padole, V.B. and Chaudhari, D.S. (2012) Detection of Brain Tumor in MRI Images Using Mean Shift Algorithm and Normalized Cut Method, International Journal of Engineering and Advanced Technology, Vol. 1, Issue 5, Pp. 53-56.
- Pal, N.R. and Bezdek, J.C. (2002) Complexity reduction for large image processing, IEEE Transactions on Systems, Man and Cybernetics, Part B: Cybernetics, Vol. 32, Pp. 598–611.
- Pal, N.R., Pal, K. and Bezdek, J.C. (1997) A mixed c-means clustering model, Proceedings of the Sixth IEEE International Conference on Fuzzy Systems, Vol. 1, Pp. 11-21.
- Pandiyammal.P and Dr Indira Gandhi.M.P (2015) Infected Fruit Part Detection Using Clustering, IJARCSSE, Vol.5, Issue 3, Pp.176-182.s
- Papoulis, A. (2002) Probability, Random Variables and Stochastic Processes, 4th Edition, McGraw-Hill.
- Pass, G. and Zabith, R. (1996) Histogram refinement for content-based image retrieval, Proc. Workshop on Applications of Computer Vision, (1996) Pp. 96-102.
- Patil, B.N. and Nirban, A.J. (2013) Trends in the export of mango from India, International Journal in Multidisciplinary and Academic Research, Vol. 2, No. 3, Pp.1-11.
- Patil, J.K. and Kumar, R. (2012) Feature Extraction of Diseased Leaf Images, Journal of Signal and Image Processing, Vol. 3, Pp. 60-63.
- Pauwels, E.J. and Frederix, G. (1999) Cluster-Based Segmentation of Natural Scenes, Proceedings of the International Conference on Computer Vision, Vol. 2, Pp. 997-1002.
- Payne, A.B., Walsh, K.B., Subedi, P.P. and Jarvis, D. (2013) Estimation of mango crop yield using image analysis – Segmentation method, Computers and Electronics in Agriculture, Vol. 91, Pp. 57-64.
- Pereira, B.B., Rao, C.R., Oliveira,R.L. and Nascimento, E.M. (2010) Combining Unsupervised and Supervised Neural Networks in Cluster Analysis of Gamma-Ray Burst, Journal of Data Science, Vol. 8, Pp. 327-338.

- Permana, K.E. and Hashim, S.Z.M. (2010) Fuzzy membership function generation using Particle -Swarm Optimization, *International journal Open Problems Compt. Math.*, Vol. 3, No. 1, Pp. 27-41.
- Peters, G. and Kerdels, J. (2007) Image segmentation based on height maps, *Proceedings of the 12th International Conference on Computer analysis of images and patterns*, Vienna, Austria.
- Pham, D.L. (2002) Fuzzy clustering with spatial constraints, *IEEE Proc.Int. Conf. Image Processing*, New York, Pp. II-65–II-68.
- Pham, D.L. and Prince, J.L. (1999) Adaptive fuzzy segmentation of magnetic resonance images, *IEEE Trans. Medical Imaging*, Vol. 18, Pp. 737–752.
- Pham, D.L., Xu, C. and Prince, J.L. (2005) A survey of current methods in medical image segmentation, *Annual Review of Biomedical Engineering*, Technical Report, Pp. 1-27.
- Ping, W., Junli, L., Dongming, L. and Gang, C. (2007) A Fast and reliable switching median filter for highly corrupted images by impulse noise, *IEEE International Symposium on Circuits and Systems*, Pp. 3427-3430.
- Plugers, P. (1999) Product survey on digital photogrammetric workstations, *GIM International*, Vol. 15, Issue 5/7, Pp. 61-61/53.
- Polek, M., Vidalakis, G. and Godfrey, K. (2007) Citrus Bacterial Canker Disease and Huanglongbing (Citrus Greening), *ANR Publications 8218*, Pp. 1-12.
- Ponraj, D.N., Jenifer, M.E., Poongodi, P. and Manoharan, J.S. (2011) A Survey on the preprocessing techniques of mammogram for the detection of breast cancer, *Journal of Emerging Trends in Computing and Information Sciences*, Vol. 2, No. 12, Pp. 656-664.
- Popenoe, W. (1920) *Manual of tropical and subtropical fruits*, the McMillan Company, New York.
- Pradeep Kumar Mallick and Minati Mishra.(2015) A Modified Switching Median Filter Using Fuzzy Logic, *International Journal of Advance Electrical and Electronics Engineering*, Vol.4 Issue -2, Pp.5-9.
- Pratt, W.K. (2007) *Digital Image Processing*, 4th Edition, John Wiley & Sons, 1991
- Prusky, D. (2011) Reduction of the incidence of postharvest quality losses and future prospects, *Food Secur.*, Vol. 3, Pp. 463–474.
- Pujari, J.D., Yakkundimath, R. and Byadgi, A.S (2013b) Grading and Classification of Anthracnose Fungal Disease in Fruits, *International Journal of Advanced Science and Technology*, Vol.52, Pp. 121-132.

- Pujari, J.D., Yakkundimath, R. and Byadgi, A.S. (2013a) Statistical Methods for Quantitatively Detecting Fungal Disease from Fruits' Images, *International Journal of Intelligent Systems and Applications in Engineering*, Vol. 1, No. 4, Pp. 60-67.
- Pujari, J.D., Yakkundimath, R. and Byadgi, A.S. (2013c) Reduced color and texture features based identification and classification of affected and normal fruits' images, *International Journal of Agricultural and Food Science*, Vol. 3, No.3, Pp. 119-127.
- Pydipati, R., Burks, T.F. and Lee, W.S. (2006) Identification of citrus disease using color texture features and discriminant analysis, *Computers and Electronics in Agriculture*, Vol. 52, Pp. 49-59.
- Qiabao, X., Xiaobo, Z. and Jiewen, Z. (2009) On-Line Detection of Defects on Fruit by Machinevision Systems Based on Three-Color-Cameras Systems, *Computer and Computing Technologies in Agriculture II*, Vol. 3, Pp. 2231-2238.
- Qiu, S. and Sun, J. (2006) Web Surface Defect Inspection Based on Singularity Detection, *Proceedings of IEEE International Conference Information Acquisition*, Weihai, Shandong, China, Pp. 1364-1368.
- Rafi, M. and Shaikh, M.S. (2013) A comparison of SVM and RVM for Document Classification, eprint arXiv:1301.2785, Cornell University Library, Computer Science, Information Retrieval, Pp. 1-9.
- Rahman, M.M., Moniruzzaman, M., Ahmad, M.R., Sarker, B.C. and Alam, M.K. (2014) Maturity stages affect the postharvest quality and shelf-life of fruits of strawberry genotypes growing in subtropical regions, *Journal of the Saudi Society of Agricultural Sciences*, Article in Press, Pp. 1-10.
- Raman, M. and Himanshu, A. (2010) A Novel Technique for Speckle Noise Reduction on Medical Images, *International Journal of Applied Engineering Research*, Vol. 5, No. 1, Pp. 16-23.
- Rana, J.S , Jindal, J., Beniwal, V. and Chhokar, V. (2010) Utility Biosensors for applications in Agriculture – A Review, *Journal of American Science*, Vol. 6, No. 9, Pp. 353-375.
- Rao, K.Y., Stephen, M.J. and Phanindra, D.S. (2012) Classification based image segmentation approach, *International Journal of Computer Science and Technology*, Vol. 3, Issue 1, Pp. 658-660.
- Rao, P.S. and Renganathan, S. (2002) New Approaches for Size Determination of Apple Fruits for Automatic Sorting and Grading, *Iranian Journal of Electrical and Computer Engineering*, Vol. 1, No. 2., Pp. 1-8.

- Rao, S.P., A. Gopal, R. Revathy and K. Meenakshi, (2009) Colour Analysis of fruits using machine vision system for Automatic Sorting and Grading, *J. Instrum. Soc. India*, Vol. 34, No. 4, Pp. 284-291.
- Rasekhi, R. and Raoufat, M. H. (2011) Sorting orange fruit by machine vision and neural networks techniques, *CIOSTA CIGR V Conference*, Pp. 1-27
- Raut, S., Raghuvanshi, M., Dharaskar, R. and Raut, A. (2009) Image Segmentation – A State- Of-Art Survey for Prediction, *Proceedings of International Conference on Advanced Computer Control*, IEEE Computer Society, Pp. 420-424.
- Razak, T.R.B., Othman, M.B., Bakar, M.N.A., Ahmad, M.A. and Mansor, A.R. (2012) Mango grading by using fuzzy image analysis, *international conference on agricultural, Environment and Biological Sciences (ICAEBS'2012) Phuket*, Pp. 18-22.
- Reed, T.R. and Dubuf, J.M.H. (1993) A Review of Recent Texture Segmentation and Feature Extraction Techniques, *CVGIP: Image Understanding*, Vol. 57, Issue 3, Pp. 359–372
- Rehman, M., Abu Izneid, B.A.J.A., Abdullah, M.Z. and Arshad, M.R. (2011) Assessment of quality of fruits using impedance spectroscopy, *International Journal of Food Science and Technology*, Vol. 46, Pp. 1303–130
- Rhee, F.C.H. and Hwang, C. (2001) A Type-2 fuzzy c means clustering algorithm, *Proc. in Joint 2th IFSA World Congress and 20th NAFIPS International Conference*, Pp. 1226–1222.
- Rizzi, A., Voltolini, F., Girardi, S., Gonzo, L. and Remondino, F. (2007) Digital preservation, documentation and analysis of paintings, monuments and large cultural heritage with infrared technology, digital cameras and range sensors , *XXI International CIPA Symposium, Greece*, Pp. 1-6.
- Roy, S. and Bandyopadhyay, S.K. (2012) Detection and Quantification of Brain Tumor from MRI of Brain and its Symmetric Analysis, *International Journal of Information and Communication Technology Research*, Vol. 2, Pp.477-483.
- Saad, M.F. and Alimi, A.M. (2009) Modified Fuzzy Possibilistic C-means, *Proceedings of the International MultiConference of Engineers and Computer Scientists (IMECS)*, Vol I, Pp. 1-6.
- Sablani, S., Opara, L. and Al-Balushi, K. (2006) Influence of bruising and storage temperature on vitamin C content of tomato fruit, *J. Food Agric. Environ.*, Vol. 4, Pp. 54–56.

- Saldaña, E., Siche, R., Luján, M. and Quevedo, R. (2013) Review: Computer vision applied to the inspection and quality control of fruits and vegetables, *Braz. J. Food Technol.*, Vol. 16, No. 4, Pp. 254-272.
- Salim, S.N.M., Shakaff, A.Y.M., Ahmad, M.N. and Adom, A.H. (2005) A feasibility study of using an electronic nose as a fruit ripeness measuring instrument, *First International Workshop on Artificial Life and Robotics*, Pp.7-11.
- Samson, J.A. (1986) *Tropical fruits (Second Edition)* Longman Scientific and Technical, New York.
- Sankarana, S., Mishraa, A., Ehsania, R. and Davisb, C. (2010) A Review of Advanced Techniques for Detecting Plant Diseases, *Computers and Electronics in Agriculture*, Vol. 72, Pp. 1-13.
- Sau, K., Chanda, A. and Karmakar, P. (2011) An unique edge preserving noise filtering technique for impulse noise removal, *Signal & Image Processing : An International Journal (SIPIJ)* Vol.2, No.3, Pp.33-46.
- Schaare, P.N. and Fraser, D.G. (2000) Comparison of reflectance, Interactance and transmission modes of visible near infrared spectroscopy for measuring internal properties of kiwifruit (*Actinidia chinensis*) *Postharvest Biology and Technology*, Pp. 175 – 184.
- Segadea, S.R., Giacosa, S., Gerbib, V. and Rolleb, L. (2011) Berry skin thickness as main texture parameter to predict anthocyanin extractability in winegrapes, *LWT - Food Science and Technology*, Vol. 44, Issue 2, Pp. 392–398.
- Segadea, S.R., Giacosa, S., Torchio, F., Palmab, L., Novello, V., Gerbia, V. and Rollea, L. (2013) Impact of different advanced ripening stages on berry texture properties of ‘Red Globe’ and ‘Crimson Seedless’ table grape cultivars (*Vitis vinifera* L.), *Scientia Horticulturae*, Vol. 160, Pp. 313-319.
- Semary, N.A., Tharwat, A., Elhariri, E. and Hassanien, A.E. (2015) Fruit-based tomato grading system based on features fusion and SVM classifier, *Intelligent Systems'2014, Advances in Intelligent Systems and Computing*, Vol. 323, Pp. 401-410 .
- Seng, W.C. and Mirisae, S.H. (2009) A New Method for Fruits Recognition System, *Electrical Engineering and Informatics*, Vol. 01, Pp. 130-134.
- Shan, S., Sandham, W. and Sterr, A. (2005) MRI fuzzy segmentation of brain tissue using neighbourhood attraction with neural network optimization, *IEEE Transactions on Information Technology in Biomedicine*, Vol. 2, Issue 3, Pp. 452-467.

- Shankar, U.B. and Pal, N.R. (1994) FFCM: An effective approach for large data sets, Proc. 3rd Int. Conf. Fuzzy Logic, Neural nets and Soft Computing, IIZUKA, Fukuoka, Japan, Pp. 332–332.
- Shannon, C. and Weaver, W. (1998) The mathematical theory of communication, University of Illinois Press.
- Shapiro, L.G. and Stockman, G.C. (2001) Computer Vision, Pearson Prentice-Hall.
- Shearer, S.A. and Payne, F.A. (1990) Color and defect sorting of bell peppers using machine vision, Trans. ASAE, Vol. 33, No. 6, Pp. 2045–2050.
- Shen, S., Sandham, W., Granat, M. and Sterr, A. (2005) MRI fuzzuy segmentation of brain tissue using neighborhood attraction with neural-network optimization, IEEE Trans. Information Technology in Biomedicine, Vol. 9, Pp 459-467.
- Silva-Bedoya, L.M., Ramírez-Castrillón, M. and Osorio-Cadavid, E. (2014) Yeast diversity associated to sediments and water from two Colombian artificial lakes, Brazilian Journal of Microbiology, Vol. 45, No. 1, Pp. 135–142.
- Simões, A.S., Costa, A.H.R., Hirakawa, A.R. and Saraiva, A.M. (2001) Applying neural networks to automated visual fruit sorting, World Congress on Computers in Agriculture and Natural Resources, Pp. 1-7.
- Singh, L.B. (1960) The Mango, cultivation and utilization, London, Leonard Hill (Books) Limited, Interscience Publishers Inc., New York.
- Singh, N., Dubey, S. R., Dixit, P. and Gupta, J. P. (2012) Semantic Image Retrieval by Combining Color, Texture and Shape Features, IEEE International Conference on Computing Sciences (ICCS) Pp. 116-120.
- Sirisathitkul, Y., Thumpen, N. and Puangtong, W. (2006) Walailak J Science and Technology, Automated Chokun Orange Maturity Sorting by Color Grading, Vol. 3, No.2, Pp. 195-205.
- Sivamoorthi, R and Dr. Sujatha N.(2015) A Novel Approach of Detection and Classification of Apple Fruit Based on Complete Local Binary Patterns, International Journal of Advanced Research in Computer Science and Software Engineering, Vol 5, Issue-4, Pp.1348-1353.
- Sivanand, S. (2013) Adaptive Local Threshold Algorithm and Kernel Fuzzy C-Means Clustering Method for Image Segmentation, Proc of IJLTET International Journal of Latest Trends in Engineering and Technology, Vol. 2 Issue 3, Pp. 1-10.

- Sivaraman, E., Arulselvi, S. and Babu, K. (2011) Data driven fuzzy c-means clustering based on particle swarm optimization for pH process, International Conference on Emerging Trends in Electrical and Computer Technology, Pp. 220-225.
- Slaughter, D.C., (2009) Nondestructive maturity assessment methods for mango: a review of literature and identification of future research needs, National Mango Board, Pp.1-18.
- Smolka, B. (2008) Peer group filter for impulsive noise removal in color images, Lecture Notes in Computer Science (LNCS 5197) Springer-Verlag, Pp. 699-707.
- Snyman, J.C. (1998) Origin and history of the mango, The cultivation of Mangoes, Institute of Tropical and Subtropical fruits, De Villiers, E.A. (Ed.) Agricultural Research Council, Nelspruit, South Africa, Pp. 1-4.
- Spinelli, F., Noferini, M. and Costa, G. (2006) Near Infrared Spectroscopy (NIRs): Perspective of Fire Blight Detection in Asymptomatic Plant Material, Proceedings of the 10th International Workshop on Fire Blight, Acta Horticulturae, Pp. 87-90)
- Srisuwan, T. and Ruchanurucks, M. (2014) Smoke detection using GLCM, wavelet, and motion, Proceedings of SPIE 9069, Fifth International Conference on Graphic and Image Processing (ICGIP 2013), 90691H, Pp. 1-6.
- Stajanko, D., Rakun, J. and Blanke, M. (2009) Modelling Apple Fruit Yield Using Image Analysis for Fruit Colour, Shape and Texture, Europ. J. Hort. Sci., Vol. 74, No. 6, Pp. 260–267.
- Stanchev, P. L., Green Jr., D. and Dimitrov, B. (2003) High level colour similarity retrieval, International Journal of Information Theories and Applications, Vol. 10, No. 3, Pp. 363-369.
- Studman, C.J. (1999) Chapter 3: fruits and vegetables, section 3.3: handling systems and packaging, CIGR Handbook of Agricultural Engineering, Vol. IV. ASAE, St. Joseph, Mich., USA, Pp. 291-339.
- Sudhavani, G. and Sathyaprasad, K. (2009) Segmentation of Lip Images by Modified Fuzzy C-means Clustering Algorithm, Proc. of IJCSNS International Journal on Computer Science and Network Security, Vol.9, No. 4, Pp. 187-192.
- Sugiyama, T., Sugiyama, J., Tsuta, M., Fujita, K., Shibata, M., Kokawa, M., Araki, T., Nabetani, H. and Sagara, Y. (2010) NIR spectral imaging with discriminant analysis for detecting foreign materials among blueberries, Journal of Food Engineering, Vol. 101, No. 3, Pp. 244-252.

- Sumengen, B. and Manjunath, B.S. (2006) Graph Partitioning Active Contours (GPAC) for Image Segmentation, PAMI, Vol.28, No. 4, Pp. 509-521.
- Sun, T., Gabbouj, M. and Neuvo, Y. (1994) Center weighted median filters: Some properties and their applications in image processing, Signal Proc., Vol. 35, Pp. 213-229.
- Sun, Y., Liang, Y. and Wu, Q. (2011) Detection of Surface Defects of Fruits Based on Fractal Dimension, Computer and Computing Technologies in Agriculture IV, IFIP Advances in Information and Communication Technology, Vol. 344, Pp 547-554.
- Susnjak, T., Barczak, A. and Reyes, N. (2013) A Decomposition Machine-learning Strategy for Automated Fruit Grading, Proceedings of the World Congress on Engineering and Computer Science, Vol. II, Pp. 1-7.
- Süsstrunk, S. and Fredembach, C. (2010) Enhancing the Visible with the Invisible: Exploiting Near-Infrared to Advance Computational Photography and Computer Vision, SID International Symposium Digest, Pp. 1-4.
- Swarnalakshmi, R. and Kanchanadevi, B. (2014) A Review on Fruit Grading Systems for Quality Inspection, International Journal of Computer Science and Mobile Computing, Vol. 3, Issue 7, Pp. 615-621
- Szabo, A., Castro, L.N.D. and Delgado, M.R. (2011) The proposal of a fuzzy clustering algorithm based on particle swarm, Third World Congress on Nature and Biologically Inspired Computing, Pp. 459 - 465.
- Taherdangkoo, M., Yazdi, M. and Rezvani, M.H. (2010) Segmentation of MR brain images using FCM improved by artificial bee colony ABC algorithm, Proceedings of the 10th IEEE International Conference on Information Technology and Applications in Biomedicine. Pp. 1-5.
- Tan, E.S., Slaughter, D.C. and Thompson, J.F.(2005) Freeze damage detection in oranges using gas sensors, Post Harvest Biology and Technology, Vol. 35, Pp. 177-182.
- Tao, Y., Heinemann, P.H., Varghese, Z., Morrow, C.T. and Sommer, H.J. (1995) Machine vision for color inspection of potatoes and apples, Trans. ASAE, Vol. 38, No. 5, Pp. 1555–1561.
- Tashk, A.R.B, (2007) Face detection using Adaboosted RVM-based component classifier, 5th International Symposium on Image and Signal Processing and Analysis, Pp. 351 - 355.
- Teoh, C.C. and Syaifudin, A.R.M. (2007) Image processing and analysis techniques for estimating weight of chokanan mangoes, J. Trop. Agric. and Fd. Sc., Vol. 35, No. 1, Pp. 183– 190.

- Teuner, A., Pichler, O. and Hosticks, B. (1995) Unsupervised texture segmentation of images using tuned matched gabor filters, *IEEE Trans. Image Processing*, Vol. 4, No. 6, Pp. 863-870.
- Thangam, S.V., SaiDeepak K., Rai, H.G.N. and Mirajkar, P.P. (2009) An Effective Edge Detection Methodology for Medical Images Based on Texture Discrimination, *Seventh International Conference on Advances in Pattern Recognition*, Pp.227-231.
- Throop, J.A., Rehlugler, G.E. and Upchurch, B.L. (1989) Application of computer vision detection watercore in apples, *Trans. ASAE*, Vol. 32, No. 6, Pp. 23-32.
- Tolias, Y.A. and Panas, S.M. (1998) Image segmentation by a fuzzy clustering algorithm using adaptive spatially constrained membership functions, *IEEE Trans. Syst., Man, Cybern. A.*, Vol. 28, Pp. 359–369.
- Ulug, M.E. and McCullough, C.L. (1999) Feature and data level fusion of infrared and visual images, *SPIE Conference on Sensor Fusion : Architectures, Algorithms and Applications III*, Vol. 3719, Pp. 312-318.
- Unay, D. and Debeir, O. (2011) Automatic grading of Bi-colored apples by multispectral machine vision, *Journal of Computers and Electronics in Agriculture*, Vol. 75, Issue 1, Pp. 204–212.
- Unay, D. and Gosselin, B. (2005) Artificial neural network–based segmentation and apple grading by machine vision, *IEEE Conference on Image Processing*, Vol. II, Pp. 630-633.
- Unay, D. and Gosselin, B. (2006) Automatic Defect Segmentation of Jonagold Apples on Multi-Spectral Images: A Comparative Study, *Postharvest Biology and Technology*, Vol. 42, Pp. 271–279.
- Vadivel, A., Sural, S. and Majumdar, A.K. (2009) Image retrieval from the web using multiple features, *Online Information Review*, Vol. 33, Iss: 6, Pp.1169 - 1188
- Van Huy Pham, Byung Ryong Lee (2015) An image segmentation approach for fruit defect detection using k-means clustering and graph-based algorithm *Springer* Vol. 2, Pp.25-33.
- Van Zeebroeck, M., Ramon, H., De Baerdemaeker, J., Nicolaï, B. and Tijskens, E. (2007) Impact damage of apples during transport and handling, *Postharvest Biol. Technol.*, Vol. 45, Pp. 157–167.
- Vapnik, V. (1995) *The Nature of Statistical Learning Theory*. Springer, New York.

- Vimaladevi, P. and Vijayarekha, K. (2014) Machine vision applications to locate fruits, detect defects and remove noise : A Review, *Rasayan J. Chem.*, Vol. 7, No. 1, Pp. 104-113.
- Visalakshi, P. and Sivanadam, S.N. (2009) Dynamic Task Scheduling with Load Balancing using Hybrid Particle Swarm Optimization, *Int. J. Open Problems, Compt. Math*, Vol 2, No 3, Pp. 475-488.
- VLSI (Visual Learning Systems, Inc.) (2003) Feature Analyst, <http://www.featureanalyst.com>, Last Accessed During January, 2016.
- Von Witzke, H., Noleppa, S. and Schwarz, G. (2008) Global agricultural market trends and their impacts on European agriculture, Working Paper 84, Humboldt University Berlin. URL <http://www.agrar.hu-berlin.de/struktur/institute/wisola/publ/wp>, Last Access Date : 28.07.2012.
- Vyas, A.M., Talati, B. and Naik, S.(2013) Colour Feature Extraction Techniques of Fruits: A Survey, *International Journal of Computer Applications*, Vol. 83, No. 15, Pp.15-22.
- Walsh, K.B. (2005) Commercial adoption of technologies for fruit grading, with emphasis on NIRS. FRUTIC '05 (Information and Technologies for Sustainable Fruit and Vegetable Production) Montpellier, France, Pp. 399-408
- Wang, Y., Cui, Y., Chen, S., Zhang, P., Huang, H. and Huang, G.Q.(2009) Study on fruit quality measurement and evaluation based on color identification, *International Conference on Optical Instruments and Technology: Optoelectronic Imaging and Process Technology*, Vol. 7513, Article ID 75130F, Pp. 1-8.
- Wang, Z. and Zhang, D. (1999) Progressive switching median filter for the removal of impulse noise from highly corrupted images, *IEEE Transactions on Circuits and Systems II*, Vol. 46, Pp. 78–80.
- Wei, L., Yang, Y., Nishikawa, R. M. and Jiang, Y. (2005) A study on several machine-learning methods for classification of malignant and benign clustered micro calcifications, *IEEE Transactions on Medical Imaging*, Vol. 24, No. 3, Pp. 371-380.
- Weizheng, S., W. Yachun, C. Zhanliang and Hongda, W. (2008) Grading method of leaf spot disease based on image processing. *Proceedings of the 2008 International Conference on Computer Science and Software Engineering, CSSE, IEEE Computer Society, Washington, DC.*, Pp. 491-494.
- Weston, J. and Watkins. C. (1999) Multi-class support vector machines, *Proceedings of ESANN99, M. Verleysen, Ed., Brussels, Belgium.*

- Weyrich, M., Wang, Y., Winkel, J. and Laurowski, M. (2012) High Speed Vision Based Automatic Inspection and Path Planning for Processing Conveyed Objects, *Procedia CIRP*, Vol. 3, Pp. 442-447,
- Woodford, B.J., Deng, D. and Benwell, G.L. (2004) A wavelet-based neuro-fuzzy system for data mining small image sets, *CRPIT Series*, Vol. 32, Pp. 1-5.
- Woodford, B.J., Kasabov, N.K. and Wearing, C.H. (1999) Fruit Image Analysis using Wavelets, K. Ko & N. Kasabov, eds, *Proceedings of the ICONIP/ANZIIS/ANNES'99 International Workshop*, University of Otago Press, Pp. 88-91.
- Wu, K.L., Yu, J. and Yang, M.S. (2005) A novel fuzzy clustering algorithm based on a fuzzyscatter matrix with optimality tests, *Pattern Recognition Lett.*, Vol. 26, Pp. 639–652.
- Wua, H.X., Jiaa, H.M., Mab, X.W., Wang, S.B., Yao, Q.S., Xu, W.T., Zhou, Y.G. Gao, Z.S. and Zhan, R.L. (2014) Transcriptome and proteomic analysis of mango (*Mangifera indica* Linn) fruits, *Journal of Proteomics*, Vol, 105, Pp.19-30
- www.docstoc.com/docs/document-preview.aspx?doc_id=87071201 Last Accessed During January, 2016.
- Xiang-min, X., Yum-feng, M., Jia-ni, X. and Feng-le, Z. (2007) Classification Performance Comparison between RVM and SVM, *IEEE International Workshop on Anti-counterfeiting, Security, Identification*, Pp. 208 – 211.
- Xiaobo, Z., Jiewen, Z. and Yanxiao, L. (2007) Apple colour grading based on organization feature parameters, *Pattern Recognition Letters*, Vol. 28, Pp. 2046-2053.
- Xu, H. and Yue, X. (2009) An adaptive fuzzy switching filter for images corrupted by impulse noise, *Proceedings of the 6th International Conference on Fuzzy Systems and Knowledge Discovery*, Vol. 3, Pp. 383-387.
- Yamakawa, M. Khot, L.R., Ehsani, R. and Kondo, N. (2012) Real-time nondestructive citrus fruit quality monitoring system: development and laboratory testing, *Agric Eng Int: CIGR Journal*, Vol. 14, No.3, Pp. 117-124.
- Yamamoto, K., Guo, W., Yoshioka, Y. and Ninomiya, S. (2014) On Plant Detection of Intact Tomato Fruits Using Image Analysis and Machine Learning Methods, *Sensors (Basel)*, Vol. 14, No. 7, Pp. 12191–12206.
- Yang Y., Zheng Ch. and Lin P. (2005) Fuzzy c-means clustering algorithm with a novel penalty term for image segmentation, *Opto-electronic review*, Vol.13, Issue 4, 2005, Pp. 302-315.

- Yang, C. M., Cheng, C. H. and Chen, R. K. (2007) Changes in Spectral Characteristics of Rice Canopy Infested with Brown Planthopper and Leafhopper, *Crop Science*, Vol. 47, Pp. 329-335.
- Yang, J., Jang, R., Zhang, Y. and Shen, H.B. (2013) High-accuracy prediction of transmembrane inter-helix contacts and application to GPCR 3D structure modeling, *Bioinformatics*, Pp. 1-6.
- Yang, J., Yang, J., Zhang, D. and Lu, J.F. (2003) Feature fusion : Parallel strategy Vs. Serial strategy, *Pattern Recognition*, Vol. 36, Pp. 1369-1381.
- Yang, M.S., Wu, K.L., Hsieh, J.N. and Yu, J. (2008) Alpha-cut implemented fuzzy clustering algorithms and switching regressions, *IEEE Trans. Syst. Man Cybern.*, Vol. 38, Pp. 588–603.
- Yimyam, P., Chalidabhongse, T., Sirisomboon, P. and Boonmung, S. (2005) Physical properties analysis of mango using computer vision, *International Conference on CAS KINTEX*, Gyeonggi-Do, Korea, Pp. 1-5.
- Yu, J. and Wang, Y. (2007) Molecular Image Segmentation Based on Improved Fuzzy Clustering, *Proc. of International Journal on Biomedical Imaging*, Vol. 2007, Article ID 25182, Pp. 1-9.
- Yue, E., Sun, X. Yang, J. and Wu, F. (2015) Image denoising by exploring external and internal correlations, *IEEE Transactions on Image Processing*, Vol. 24, No. 6, Pp. 1967-1982.
- Yue, J., Li, Z., Liu, L. and Fu, Z. (2011) Content-based image retrieval using color and texture fused features, *International Journal on Mathematical and Computer Modelling*, Vol. 54, Issue 3-4, Pp. 1121-1127.
- Zadeh, L.A. (1965) Fuzzy Sets, *Inform. and Control.*, Vol. 8, Pp. 338–353.
- Zakaria, A., Shakaff, A.Y., Masnan, M.J., Saad, F.S.A., Adom, A.H., Ahmad, M.N., Jaafar, M.N., Abdullah, A.H. and Kamarudin, L.M. (2012) Improved maturity and ripeness classifications of mangifera indica cv. harumanis mangoes through sensor fusion of an electronic nose and acoustic sensor, *Sensors (Basel)*, Vol. 12, no.,5, Pp. 6023-6048.
- Zaragoza, A.V. (2013) Measurement of colour of citrus fruits using an automatic computer vision system, *Thesis: Master in Science and Engineering of Food*, Univ. of Politecnica De Valencia, Pp. 1-19.
- Zeilew, H.D. (2008) Application of Digital Image Processing Techniques for Asphalt Concrete Mixture Images, *The 12th International Conference of International Association for Computer Methods and Advances in Geomechanics (IACMAG) Goa, India*, Pp.119-124.

- Zeng, W., Lu, X. and Tan, X. (2015) A local structural adaptive partial differential equation for image denoising, *Multimedia Tools Appl.*, Vol. 74, No. 3, Pp. 743-757.
- Zhang, B., Huang, W., Li, J., Zhao, C., Fan, S., Wu, J. and Liu, C. (2014) Principles, developments and applications of computer vision for external quality inspection of fruits and vegetables: A review. *Food Research International*, 62, 326-343.
- Zhang, C., Ouyang, D. and Ning, J. (2011) An artificial bee colony approach for clustering. *Expert Systems with Applications*, Vol. 377, Pp. 4761-4767.
- Zhang, D.Q. and Chen, S.C. (2004) A novel kernelized fuzzy c-means algorithm with application in medical image segmentation, *Artif. Intell. Med.*, Vol. 32, Pp. 37-52.
- Zhang, D.Q., Chen, S.C., Pan, Z.S. and Tan, K.R. (2003) Kernel-Based Fuzzy Clustering Incorporating Spatial Constraints for Image Segmentation, *Proc. International Conference on Machine Learning and Cybernetics*, Vol. 4, Pp. 2189-2192.
- Zhang, D.S., Islam, M. and Lu, G.J. (2012) A review on automatic image annotation techniques, *Pattern Recognition*, Vol. 45, No. 1, Pp. 346-362.
- Zhang, G., Ma, Z.M. and Yan, L. (2009) Review on Texture Feature Extraction and Description Methods in Content-Based Medical Image Retrieval, *Artificial Intelligence for Maximizing Content Based Image Retrieval*, Chapter 03, IGL Global, Pp. 63-86.
- Zhang, G., Yang, M. and Wei, S. (2010a) Semi-supervised Robust NRFCM for Image Segmentation with Pairwise Constraints, *Proceedings of the 2010 International Conference on Artificial Intelligence and Computational Intelligence*, Vol. 2. IEEE Computer Society, Pp. 525-529.
- Zhang, M., Zhang, L and Cheng, H.D. (2010b) A neutrosophic approach to image segmentation based on watershed method, *Signal Proc.*, Vol. 90, No.5, Pp.1510-1517
- Zhang, S. and Karim, A. (2002) A new impulse detector for switching median filters, *IEEE Signal Process. Lett.*, Vol. 9, No. 11, Pp. 360-363.
- Zhang, Y. and Wu, L. (2012) Classification of fruits using computer vision and a multiclass support vector machine, *Sensors*, Vol. 12, Pp. 12489-12505.
- Zhang, Y., Lai, C.F. and Shitong, W. (2009) Robust fuzzy clustering-based image segmentation, *Applied Soft Computing*, Vol. 2, No. 1, Pp. 10-14.

- Zhanga, B., Huanga, W., Lia, J., Zhaoa, C., Fana, S., Wua, J. and Liub, C. (2014) Principles, developments and applications of computer vision for external quality inspection of fruits and vegetables: A review, *Food Research International*, Vol. 62, Pp. 326–343.
- Zheng, H. and Lu, H. (2012) A least-squares support vector machine (LS-SVM) based on fractal analysis and CIELab parameters for the detection of browning degree on mango (*Mangifera indica* L.), *Computers and Electronics in Agriculture*, Vol. 83, Pp. 47-51.
- Zheng, H., Lu, H., Zheng, Y., Lou, H. and Chen, C. (2010) Automatic sorting of Chinese jujube (*Zizyphus jujube* Mill. cv. 'hongxing') using chlorophyll fluorescence and support vector machine, *Journal of food engineering*, Vol.101, No. 4, Pp. 402-408.
- Zhou, R., Damerow, L., Sun, Y. and Blanke, M.M. (2012) Using colour features of cv. 'Gala' apple fruits in an orchard in image processing to predict yield, *Precision Agriculture*, Vol. 13, No. 5, Pp. 568-580.
- Zsófi, Z., Villangó, S., Pálfi, Z., Tóth, E. and Bálo, B. (2014) Texture characteristics of the grape berry skin and seed (*Vitis vinifera* L. cv. Kékfrankos) under postveraison water deficit, Vol. 172, Pp. 176–182.