
Editorial

Srikanta Patnaik

Computer Science and Engineering,
SOA University,
P.O. Khandagiri, Bhubaneswar 751030, India
and
IIMT, Bhubaneswar,
At/P.O. Kantabada; Via, Janla,
Dist. Khurda 752 024, Orissa, India
E-mail: patnaik_srikanta@yahoo.co.in

Biographical notes: Srikanta Patnaik is a Professor in Computer Science and Engineering, SOA University and the Chairman of IIMT, Bhubaneswar, India. He received his PhD in Engineering in the year 1999 from Jadavpur University, Calcutta, India. He has authored the book *Robot Cognition and Navigation: Experiment with Mobile Robot* and edited two volumes *Machine Learning and Perception* and *Innovations in Robot Mobility and Control* published from Springer, Germany. His name has been placed in the Marquis Who's Who in the World for the 2004. He has been nominated as the International Educator of the year 2005, by International Biographical Centre, Great Britain.

Vision and robotics have gained considerable interest among the researchers in the recent past. Image processing, pattern recognition, image understanding and machine vision is now merging towards bigger area namely vision sciences. *Int. J. of Computation Vision and Robotics* serves to report and disseminate the research out comes from these areas. In this issue of *IJCVR*, seven research papers have been included basically from the computational vision area.

The first paper titled 'An improved fast watershed algorithm for image segmentation' by Suphalakshmi et al. proposed an improved fast watershed algorithm, which scans the image only twice, one for generating connected components and other for labelling the catchment basins. Their experimental result shows that proposed algorithm produces expected results twice faster than existing algorithm.

Second paper by Anil Balaji Gonde and his co-worker reported a combination of A'trous wavelet transform (AWT) and Julesz's texton theory for feature extraction and retrieval of the images from natural image database. They have used AWT to decompose the image and different texton elements to detect the spatial co-relation among the transform pixels in horizontal, vertical, diagonal and minor diagonal directions. They have tested the method on Corel 1000 and 2500 image database and presented the retrieval results. They claimed that there is an improvement in average precision, average weighted precision, average recall rate, average rank, standard deviation of rank, standard deviation of precision as well as feature extraction, and retrieval time compared to optimal quantised wavelet correlogram (OQWC) and Gabor wavelet correlogram (GWC).

The next paper entitled 'Sign and magnitude of local patterns for image indexing and retrieval' by M. Subrahmanyam et al. reported a new image indexing and retrieval

algorithm called sign and magnitude of local pattern (LP) operator. They have proposed two new operators namely (S_LP and M_LP) as well as the combination of Gabor transform and LP operators (S_LP and M_LP). They have tested the results on two different image databases i.e., Brodatz database (DB1) and MIT VisTex database and reported that there is an improvement in terms of average retrieval rate as compared to S_LP (LBP).

Next paper entitled by 'Optimisation of features using evolutionary algorithm for EEG signal classification' by M.N. Mohanty et al. reported the classification of EEG signals of various pattern using support vector machines (SVM). EEG data is very noisy and has different types of artefacts. They have reported the optimisation of different time-frequency kernels belonging to Cohen's class and comparative assessment of the classification performance with the conventional Gaussian kernels in time as well as frequency domain.

Fifth paper entitled 'A mathematical model for computational aesthetics' by W.A.P. Wickramasinghe et al. is a unique piece of work of computational vision. He has reported the research of computational methods that can be applied in aesthetic decisions similar to the human's sense of aesthetic. The unique piece of research has a direct impact on landscape planning and management, computer aided conceptual design, garment and fashion industry, entertainment industry, architecture, interior design, etc. They have also reported the inventions which have made a significant impact on the development of frameworks and models for computational aesthetics.

Next paper entitled 'Pixel scratching algorithm for edge detection of monochrome image objects' by S. Priyadarshini and G. Sahoo proposed a new technique called as 'pixel scratching algorithm', which finds edges of objects in any black and white image by scratching out all those pixels that show abrupt changes in grey levels and making all other pixels as background.

Basically rough set theory, which is proposed by Pawlak is termed as traditional rough set theory and it has been extended in many directions. Covering based rough set is one of the extensions of the basic rough set theory. A covering is a generalisation of notion of partitioned rough set (Pawlak rough set) introduced by W. Zakowski. Debadutta Mohanty in his paper entitled 'Covering based approximation – a new type approach' has introduced a new type of covering based rough set in which both lower and upper approximation operators are improved.

Out of the seven papers presented in this issue, five of them are implementations of various computational tools. Seventh paper is purely mathematical and a new dimension of rough set theory. Fifth paper is a unique piece of work i.e., aesthetic application of computation vision. I am sure the readers shall gain a lot out of these papers.