Editorial: Modern challenges in pattern recognition

Alex Pappachen James

School of Computer Science,
Indian Institute of Information Technology and Management,
Kerala, Technopark Campus, Trivandrum,
Kerala, 695581, India
and
School of Engineering,
Nazarbayev University,
53 Kabanbay Batyr Ave.,
010000, Astana, Kazakhstan
E-mail: apj@ieee.org

The *International Journal of Applied Pattern Recognition* is devoted to study of pattern recognition and its application across different scientific disciplines. The journal encourages the publication of research that is not just theoretical innovations but that can be applied in practical applications. The applied aspects of pattern recognition include but not limited to feature assessment, formation, extraction and selection – as applied to solving pattern recognition, classification and clustering problems. Since more and more devices are internet enabled, the variety and volume of data is ever increasing making high speed data classification and pattern recognition extremely challenging in the upcoming years.

Realistic applications of automatic pattern recognition techniques become difficult when there are:

1 low number of training samples

2 natural variability that forces large diversity between the test and training samples

3 absence of features that leads to incorrect or misrepresented features

4 outliers in the samples that results from erroneous measurements, sensors and environments

5 mathematical or physical transformations on the data that lead to inseparable decision boundaries between classes.

These issues grow in significance when the data size is large, and when the recognition approaches demand large computational complexities in modern computing systems and architectures. The challenges in pattern recognition are still lesser known and understood in modern applications, as since the last three decades the experiments and analysis is largely limited to data obtained under controlled environments. For example, in an automatic face recognition application, authors in the past has reported very high recognition performances on specific issues such as facial expression, impact of illumination changes and pose variation with experiment done under high controlled laboratory situations. However, when these methods are put in real practice, several of

uncontrolled and unanticipated scenarios occur such as untrained face expressions or combinations of expressions, natural twins and/or look alike, changes in faces with accidents, and shadows and masks on faces, that causes the automatic recognition of faces difficult and often results in very poor recognition performances. Another major aspect is the speed of processing, as in practical application in real-time scenarios require faster recognition, irrespective of the size of the data.

In this issue, in total seven research papers are published:

1 Combining diverse classifiers using precision index functions by Jose Bird and Daijin Ko

2 The predictive power of ranking systems in association football by Jan Lasek et al.

3 Viewpoint invariant gender recognition by Mokhtar Taffar et al.

4 One-sample face recognition with local similarity decisions by Alex P. James

5 A new large Arabic database for offline handwriting recognition by Maamar Kef et al.

6 Comparison of VQ and GMM approach for identifying Indian languages by Pinki Roy and Pradip K. Das

7 Species and variety detection of fruits and vegetables from images by Shiv Ram Dubey and Anand Singh Jalal

These papers reflect the diverse nature of applications of pattern recognition in modern context ranging from sports, biometrics, document recognition, image recognition, human languages and gender.

The editorial board has broad and high-level expertise in the domain of pattern recognition who would ensure the quality of the contributions. The journal plans to add new editorial members and reviewers on a regular basis to reflect emerging areas in the field of applied pattern recognition. The success of the journal depends on your contributions in the form of author to papers, as a reviewer, through guest editorials for special issues, and through your feedback on our publication policy. This journal recognises cross-disciplinary nature of applications and use of automatic pattern recognition methods in modern context. And encourages short length submissions having significant impact and originality. I welcome high quality submissions in the upcoming issues. The call for papers in the upcoming special issues and regular issues can be found in: http://www.inderscience.com/ijapr.