
Editorial

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Biographical notes: Samarjeet Borah is currently working as a Professor in the Department of Computer Applications, SMIT, Sikkim Manipal University (SMU), Sikkim, India. He has carried out various funded projects from AICTE (GoI), DST-CSRI (GoI), etc. He has organised various workshops, national and international. He is involved with various book volumes and journals of repute of Springer, IEEE, Inderscience and IGI Global Editor or Guest Editor. He is the Editor-in-Chief of the book and proceedings series – *Research Notes on Computing and Communication Sciences*, Apple Academic Press, USA. His areas of research are data mining, data science and machine learning.

The *IJBM* special issue on – ‘Biometrics: challenges and applications’ is designed to report state-of-the-art research outcomes in the field of biometrics. There were several submissions received from around the globe to this special issue. The editorial board of the journal has carefully selected five technically strong research works within the scope of the special issue with the help of the reviewers. A brief discussion on the works included in this special issue is stated below.

The first work of this special issue is on face recognition system presented by R. Vinodini and M. Karnan. The presented technique based on principle component analysis, support vector machine, K-nearest neighbour and ant colony optimisation. This paper also presents an investigation on issues faced by various existing methods in terms of accuracy and computational complexity in order to face detection and recognition.

The next research work contains palmvein-based personal recognition which is presented by is by Mohanad Abukmeil and Gian Luca Marcialis. Authors investigate multiple snapshot fusion of textural features for palmvein recognition including identification and verification. Palmveins are unique in nature. As stated palmvein images are can be characterised by texture that can be pointed out by textural features. These can be easily managed at feature-level fusion, when more than one sample can be acquired for recognition.

Next, we find a comparative analysis work on Euclidean and Manhattan distances for skin detection. Authors Ouarda Soltani and Souad Benabdelkader used the SFA database for the said experiment. Skin detection from images is found quite challenging because of the camera characteristics, skin colours due to different ethnicities, etc. This plays an important role in face recognition. The proposed scheme segments facial colour images inside or outside SFA by means of skin samples belonging to SFA.

Age group and gender of a user can be predicted by the activities on a touchscreen device. A research work on the same by Soumen Roy, Devadatta Sinha and Utpal Roy is included in this special issue. Touch enabled devices such as smart phones contain inbuilt rotational sensors. These sensors can provide information on how the users of a specific

class interact with the phone. The authors have used XGBoost to develop the predictive models. To test the efficacy of the approach – leave one out cross-validation and leave one user out cross-validation are being used. Application domains of the research work include digital forensic, targeted advisement, auto-profiling, age-restricted access control, human-machine interaction, etc.

The last work of this special issue is about a robust and efficient fingerprint minutiae extraction technique. Fingerprint recognition using minutiae extraction is important for personal authentication. The authors using frequency domain filter for pre-processing of fingerprints. Fast Fourier transform is used to improve the fingerprint image which is followed by binarisation and thinning process. The experiment applies Rutovitz crossing number (CN) method for ensuring the preservation of true minutiae discarding the false one. The authors also used Graham's scan algorithm based convex hull filtering technique to eliminate the false minutiae from the fingerprints.

The guest editor of the special issue would like to extend sincere thanks and gratitude to the Editor-in-Chief of *IJBM*, Professor Dr. Khalid Saeed, all the reviewers and authors involved in this special issue and the publisher.