

## Chapter 8

# CONCLUSION AND FUTURE ENHANCEMENT

Gender recognition and age estimation play a prominent role in many applications. The techniques which will be used give good accuracy removing noise in images. It provides a simple technique and user-friendly. It reduces the complexity of face detection in many fields. It is easily accessible. SVM technique provides appropriate classification and accurate result for estimation and recognition. In this paper, we have contended both theoretically and experimentally that exploiting sparsity is critical for the high-performance classification of high-dimensional data such as face images. With sparsity properly harnessed, the choice of features becomes less important than the number of features used (in our face recognition example, approximately 100 are sufficient to make the difference negligible).

An intriguing question for future work is whether this framework can be useful for object detection, in addition to recognition. The usefulness of sparsity in detection has been noticed in the work and more recently explored. We believe that the full potential of sparsity in robust object detection and recognition together is yet to be uncovered. From a practical standpoint, it would also be useful to extend the algorithm to less constrained conditions, especially variations in object pose. We discuss our algorithm's ability to adapt to nonlinear training distributions.

However, the number of training samples required to directly represent the distribution of face images under varying pose may be prohibitively large. Extrapolation in a pose, e.g., using only frontal training images, will require integrating feature matching techniques or nonlinear deformation models into the computation of the sparse representation of the test image. Doing so, in a principled manner, it remains an important direction for future work.

## REFERENCES

- [1] IEEE “Gender Identification Using Frontal Facial Images ” by Amit Jain, Jeffrey Huang and Shiao-fen Fang, 2005.
- [2] IEEE “Robust Face Recognition via Sparse Representation” by John Wright, Allen Y. Yang, Arvind Ganesh, 2009.
- [3] IEEE “Age Synthesis and Estimation via Faces: A Survey” by Yun Fu, Guodong Guo, Thomas S. Huang, 2010.
- [4] IEEE “Facial Image Classification Based on Age and Gender ” by Thakshila R. Kalansuriya, Anuja T. Dharmaratne, 2013.
- [5] IEEE “Age Estimation and Gender Classification of facial images based on the local directional pattern” by Min Hu, Yoana Zheng, Fuji Ren, He Jiang, 2014.
- [6] IEEE “Age Group Classification and Gender Detection Based on Forced Expiratory Spirometry” by Sema Cosgun, I. Yucel Ozbek, 2015.
- [7] ELSEVIER “Facial expression recognition: A survey” by Jyoti Kumari, R. Rajesh, K. M. Pooja, 2015.
- [8] ELSEVIER “Texture-based estimation of age and gender from wild conditions”, by Aswathy Unnikrishnan, Ajesh F, Dr. Jubilant J Kizhaketotam, 2015.
- [9] ELSEVIER “Face Recognition System Using Genetic Algorithm” by Prathibha Sukhija, Sunny Behal, Pritpal Singh, 2016.
- [10] IEEE “Age Group and Gender Estimation in RoR Architecture “, Ke Zhang, 2017.
- [11] IEEE “Research on Face Recognition Based on Deep Learning” Xia Han, 2018.