

# Gender Recognition System Using Convolutional Neural Network

**K. Bhavana<sup>1</sup>, K. Sravya Reddy<sup>2</sup>, B. Pranathi<sup>3</sup>, CH. Maheshwari<sup>4</sup>, T. Ratnamala<sup>5</sup>**

B. Tech (IV-CSE), Department of Computer Science and Engineering<sup>1,2,3,4</sup>

Associate Professor, Department of Computer Science and Engineering<sup>5</sup>

Ace Engineering College, Hyderabad, Telangana, India

bhavanakongara01@gmail.com<sup>1</sup>, kondasravyareddy2000@gmail.com<sup>2</sup>, pranathisree124@gmail.com<sup>3</sup>,  
chenagalamaheshwari19@gmail.com<sup>4</sup>, ratnamala5b5@gmail.com<sup>5</sup>

**Abstract:** Human gender detection which is a part of facial recognition has received extensive attention because of its different kinds of application. Previous research works on gender detection have been accomplished based on different static body feature for example face, eyebrow, hand-shape, body-shape, finger nail etc. In this research work, we have presented human gender classification using Convolution Neural Network (CNN) from human face images as CNN has been recognised as best algorithm in the field of image classification. To implement our system, at first a pre-processing technique has been applied on each image using image processing. The pre-processed image is passed through the Convolution, RELU and Pooling layer for feature extraction. A fully connected layer and a classifier is applied in the classification part of the image. To obtain a better result, we have implemented our system using different optimizers. We use libraries like , Keras , Opencv and also uses Tensorflow as backend.

**Keywords:** Convolution Neural Network, Convolution, RELU, Pooling layer, Optimizers, Tensor Flow, Opencv.

## REFERENCES

- [1]. Ahmed, T.U., Hossain, S., Hossain, M.S., ul Islam, R., Andersson, K.: Facial expression recognition using convolutional neural network with data augmentation. In: 2019 Joint 8th International Conference on Informatics, Electronics & Vision (ICIEV) and 2019 3rd International Conference on Imaging, Vision & Pattern Recognition (icIVPR), pp. 336–341. IEEE (2019)
- [2]. BenAbdelkader, C., Griffin, P.: A local region-based approach to gender classification from face images. In: 2005 IEEE Computer Society Conference on Computer Vision and Pattern Recognition (CVPR'05)-Workshops, p. 52. IEEE (2005)
- [3]. Dhall, S., Sethi, P.: Geometric and appearance feature analysis for facial expression recognition. Int. J. Adv. Eng. Technol. 7(111), 01–11 (2014)
- [4]. Lian, H.-C., Lu, B.-L.: Multi-view gender classification using local binary patterns and support vector machines. In: Wang, J., Yi, Z., Zurada, J.M., Lu, B.-L., Yin, H. (eds.) ISSN 2006. LNCS, vol. 3972, pp. 202–209. Springer, Heidelberg (2006).
- [5]. Sun, Z., Yuan, X., Bebis, G., Louis, S.J.: Neural-network-based gender classification using genetic search for eigen-feature selection. In: Proceedings of the 2002 International Joint Conference on Neural Networks. IJCNN'02 (Cat. No. 02CH37290), vol. 3, pp. 2433–2438. IEEE (2002)
- [6]. Serna, I., Peña, A., Morales, A., Fierrez, J.: InsideBias: measuring bias in deep networks and application to face gender biometrics. In: 2020 25th International Conference on Pattern Recognition (ICPR), pp. 3720–3727. IEEE (2021)