Department of Electrical and Computer Engineering
North South University

Senior Design Project

CSE499

Gender & Age Detection using CNN and Deep Learning

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Fall, 2022

Declaration

This is to declare that no part of this report or the project has been previously submitted elsewhere for the fulfillment of any other degree or program. Proper acknowledgement has been provided for any material that has been taken from previously published sources in the bibliography section of this report.

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Approval

The capstone project entitled “Gender & Age Detection using CNN and Deep Learning” by Lamia Akter Shahinur, (ID#1821023042), Mahmuda Akter Meem (ID#1821029042), Kaniz Fatema (ID#1821382042), and Md. Mobasshir Miah (ID#1911248642) is approved in partial fulfilment of the requirement of the Degree of Bachelor of Science in Computer Science and Engineering and has been accepted as satisfactory.

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Acknowledgement

By the grace of the Almighty we have successfully completed our senior design project entitled “Gender & Age Detection using CNN and Deep Learning”.

Firstly, we express our deep gratitude to our faculty advisor Dr. Shahnewaz Siddique, who has expertly guided us in our senior design project throughout the whole CSE499A and CSE499B. From all types of research needed, to documenting our project through writing, and implementing our designed system, his guidance helped us tremendously.

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Abstract

An application for video data analysis based on computer vision and machine learning method are presented. Novel gender and age classifiers based on adaptive features, local binary patterns and support vector machines are proposed. As features for the gender and age estimation, facial shape, skin texture, hue and Gabor feature are used. In order to show the effectiveness of proposed method, not only real-age database of facial image but also appearance-age database is employed. We also analyze the facial features characteristic to each age category and gender, and examine the difference feature of between the real-age and appearance-age in a facial area. Moreover, we examined the left-right symmetric property of the face concerning gender and age estimation by the proposed method. The promising practical application of such algorithms can be human-computer interaction, surveillance monitoring, video content analysis, targeted advertising, biometrics, and entertainment.