Gender, Age and Emotion Detection

ABSTRACT

The need for data science, machine learning, and AI is increasing exponentially every passing year. The development of technologies to understand people, know their behavior, and acting according to them is a key to this. Face recognition is one of the significant aspects of this. Many companies, businesses, agencies are using those for different requirements. It is used in apps like Snapchat, identifying criminals in a crowd, security and video surveillance, and privacy of our smartphones. Yet many other details can be extracted from a human face like gender, age, facial expression(sad/happy) and can be used for better performance in several real-world applications, including electronic customer relationship management, electronic vending machines, human-computer interaction, and entertainment.

In this project, We will be using Computer vision using Python. It involves acquiring, processing, analyzing, and understanding images to extract high-dimensional data from the real world to generate information that can then be used to detect gender, age, and emotions. We will be implementing CNN, Deep learning approaches, and OpenCV using Python to achieve robust age group and gender classification of faces. We will try to use a dataset for face photos that include various real-world imaging conditions like noise, lighting, pose, and appearance. We will classify people into male and female and different age groups. We will be using various online materials for learning about this and implementing it in the most reliable way possible. After that, we will also implement emotion detection using our learnings from gender and age detection.

Plan of Action	
WEEK -1	
Mon - Tue	Learning and reading about required topics in CNN
Tue - Wed	Learning and reading about required topics in Deep Learning
Thur-Fri	Learning about implementation on OpenCV and TensorFlow
Sat-Sun	Getting familiar with Argparse Library
WEEK -2	
Mon - Tue	Implementing image preprocessing
Tue - Wed - Thur	Implementing features learning and classification
Fri - Sat	Identifying difficulties and flaws

Reference used - Online resources :

1. https://www.hindawi.com/journals/tswj/2020/1289408/
2. https://data-flair.training/blogs/python-project-gender-age-detection/

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