Machine Learning Model for Age and Gender Detection

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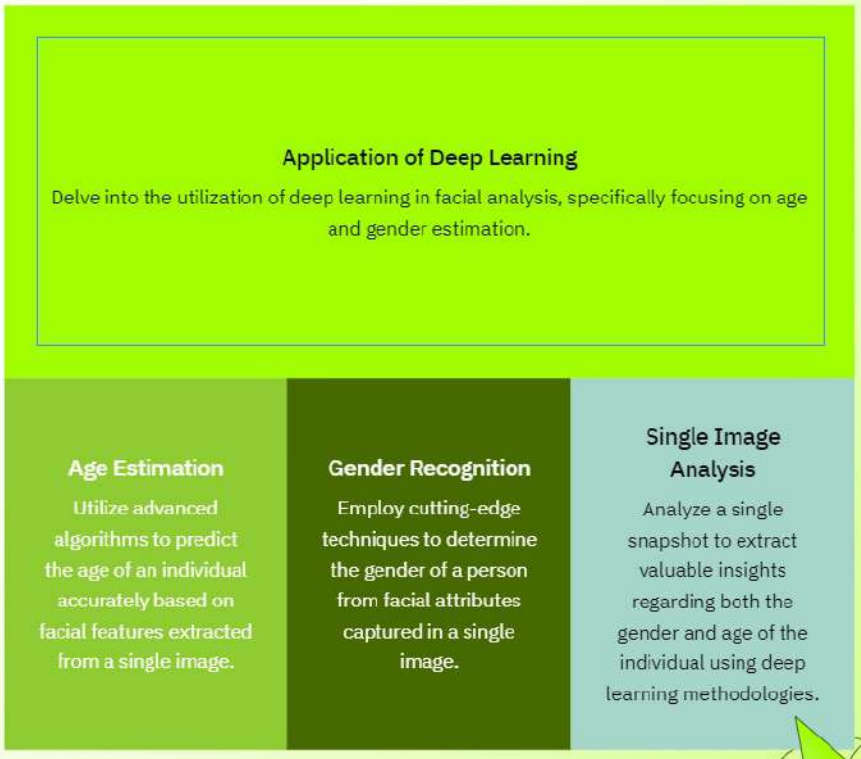
Deep Learning Application in Age and Gender Esti...

Objective

Exploring Deep Learning for Facial Age and Gender Estimation



Deep Learning Impact

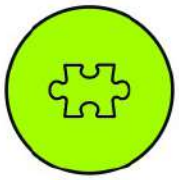
About the Project

Deep Learning for Gender and Age Identification

Gender and Age Identification

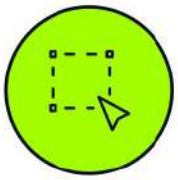
Utilize deep learning to accurately determine gender and age from a single image.

Model Training



Develop a dedicated model specifically designed for gender and age detection.

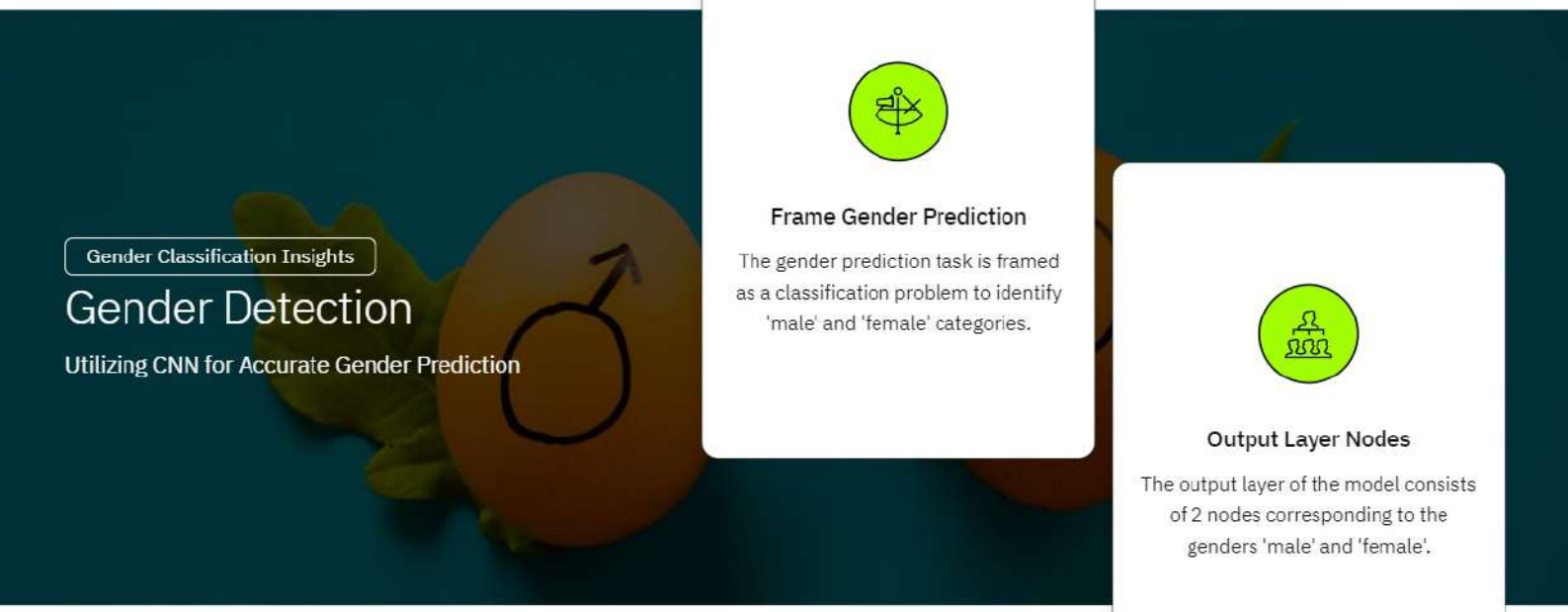
Classification Approach



Predict gender as 'male' or 'female' and age within predefined ranges to overcome challenges like makeup, lighting, and facial expressions.

Challenges Addressed

Address makeup, lighting, obstructions, and facial expressions by treating age prediction as a classification problem rather than regression.



Gender Classification Insights

Gender Detection

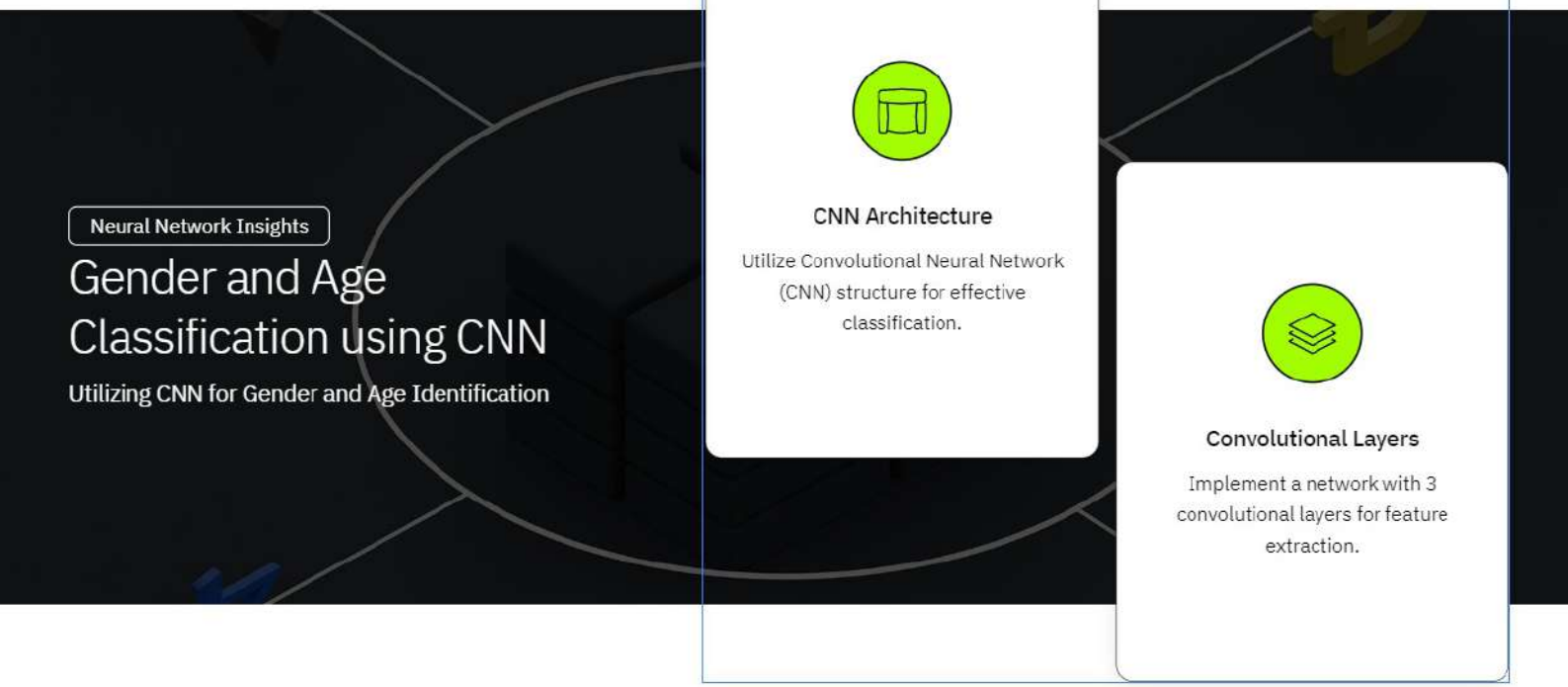
Utilizing CNN for Accurate Gender Prediction

Frame Gender Prediction

The gender prediction task is framed as a classification problem to identify 'male' and 'female' categories.

Output Layer Nodes

The output layer of the model consists of 2 nodes corresponding to the genders 'male' and 'female'.


Neural Network Insights
Gender and Age Classification using CNN
Utilizing CNN for Gender and Age Identification
CNN Architecture
Utilize Convolutional Neural Network (CNN) structure for effective classification.
Convolutional Layers
Implement a network with 3 convolutional layers for feature extraction.

Age Estimation Insights

Age Prediction

Challenges and Solutions in Age Estimation

Regression Problem

Age prediction is a regression problem as it requires predicting a real number output.

Age Grouping Strategy

To address estimation challenges, age classification into groups like (0-4), (4-6) is proposed.

Estimation Difficulty

Accurately estimating age through regression poses challenges due to various factors.

Time Allocation Distribution

Code Ideas Breakdown

Breakdown of Time Allocation for Each Task

Task	Time Allocation
Detect Face	25%
Detect Gender	25%
Detect Age	25%
Display Output	25%

Model Selection

Models Used

Key Models for Age and Gender Detection