Project Presentation

AGE & GENDER RECOGNITION USING CONVOLUTIONAL NEURAL NETWORKS

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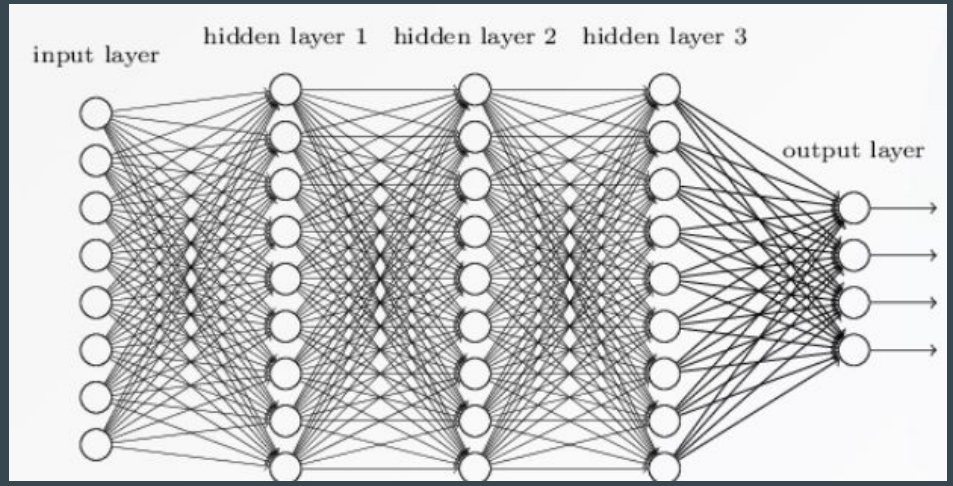
What is this project about?

Automatic age and gender classification has become relevant to an increasing amount of applications, particularly since the rise of social platforms and social media. Nevertheless, the performance of existing methods on real-world images is still significantly lacking, especially when compared to the tremendous leaps in performance recently reported for the related task of face recognition. In this project we show that by learning representations through the use of deep-convolutional neural networks (CNN), a significant increase in performance can be obtained on these tasks

In this project we are using TensorFlow and Deep Learning for face detection and classification. Along with that we are using the Django framework for web application development so that it can work on any device with an internet connection and a web browser.

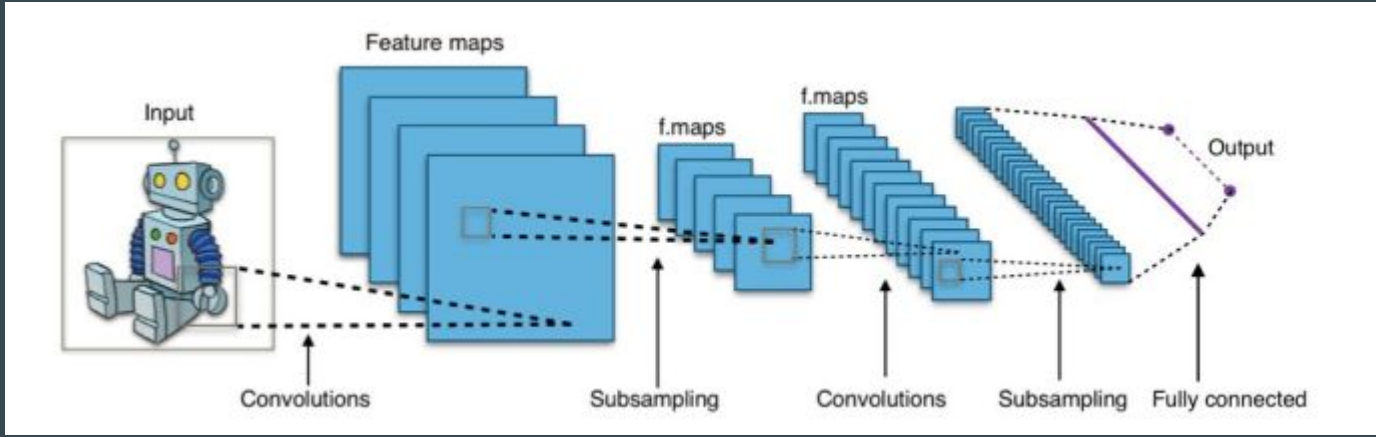
But what is a Neural Network ?



- A simple Neural Network (aka Artificial Neural Network) consists of a no. of layers with nodes in one layer connected to the nodes in the next and previous layers.
- The input layer consists of the input values provided.
- The activation value of each node is calculated by summing up the products of values and the corresponding edge weights of the connection.
- Before the node outputs a value, the computed value is passed through a function known as activation function which modifies the value appropriately as desired.
- The output layer is used for deriving/approximating the output value.

What is a CNN ?

In deep learning, a convolutional neural network (CNN, or ConvNet) is a class of deep neural networks, most commonly applied to analyzing visual imagery. They have applications in image and video recognition, recommender systems, image classification, medical image analysis, and natural language processing.

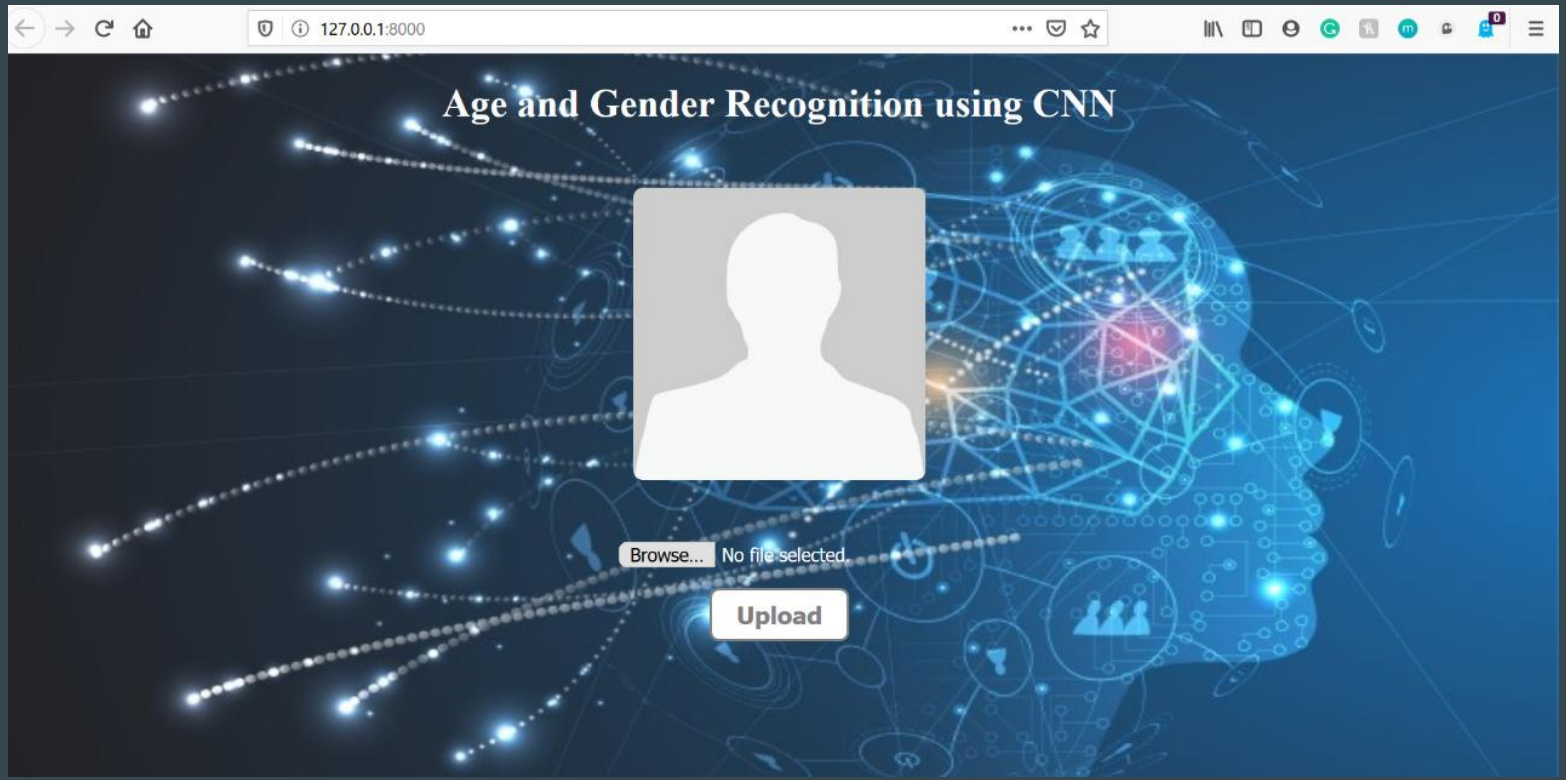


A typical Convolutional Neural Network

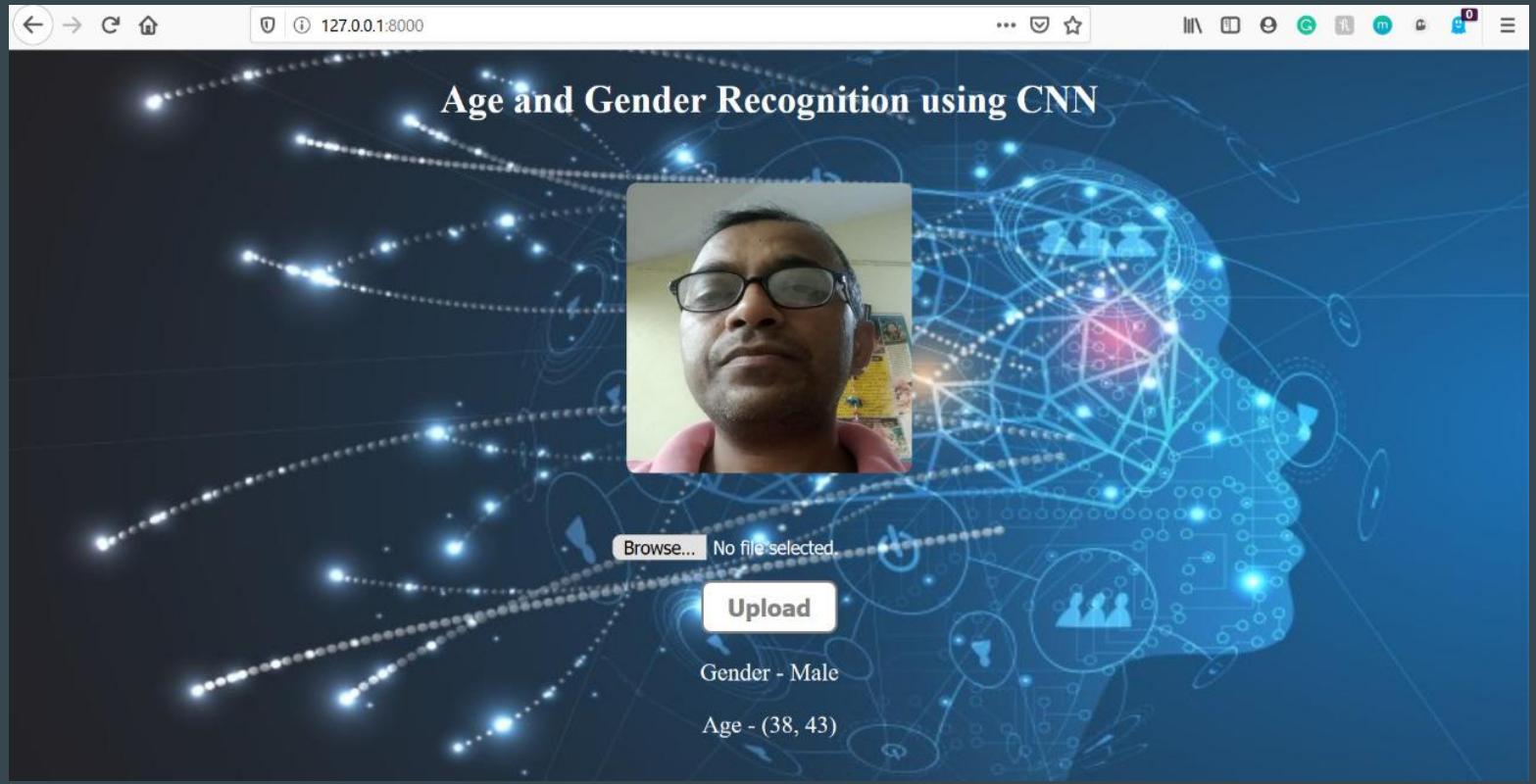
How to use the application ?

- Create a virtual environment for project using cmd **`python -m venv myvenv`**
- Clone the GitHub project in your local directory with command
  - **`git clone https://github.com/raviRB/Age-Gender-Recognition.git`**
- Run the cmd **`pip install -r requirements.txt`** if requirements.txt is present in the current directory otherwise go to that directory and run the above command. This command will install the necessary packages required to run the project.
- Go the the directory where Django project and manage.py file is present.
- Run following commands in the cmd
  - **`python manage.py make migrations`**
  - **`python manage.py migrate`**
  - **`python manage.py runserver`**

- If everything has been done correctly, the project should be running on your local host `http://127.0.0.1` as shown below.



- Click on Browse and select an image.
- Now, click on Upload to get the predicted age and gender.



How to access the Neural Network code for Training and Testing purposes?

- The code can be accessed by opening .ipynb files provided in the repository inside the directory CNN models.
- These files can be opened using any IPython notebook preferably Jupyter/Colab notebook.
- The code has been split up into blocks with each block having some functionality.
- The code has been well commented to enhance the readability/understandability of the user.

THANK YOU

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