Faculty of Engineering and Technology

Minor Project Work/Internship – Student Log Book

Project Batch ID
B141

Name of student	Register Number	Department	Mobile Number	Email ID
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Degree/ program	B.Tech	**Specialisation**	Computer Science
Academic Year	2022-2023	**Semester**	8
Course Code	18CSP107L	**Course Title**	Project

Working Title of the Project:	AGE AND GENDER CLASSIFICATION USING CONVOLUTIONAL NEURAL NETWORK
Project Site / Location	Chennai
Name and address of the company / organisation (Applicable for projects with industry or industry support)	SRM University, Kattankulathur, Chengalpattu District-603203

Supervision Team

	Supervisor	Co-Supervisor	External Supervisor (If applicable)
Name	Ms. V.S. Saranya		
Designation	Assistant Professor		
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Mission Statement

Problem (or) Product Description:
Age identification and gender classification play a pivotal role in our social lives. Every language in the world reserves different salutations for men and women, and very often different vocabularies are used when addressing elders compared to young people. These customs are largely dependent on one's ability to estimate these individual traits of a person: age and gender, which are obtained from the facial appearances. With the growth of social media and the internet, researchers have been looking into automating this process. In this project, we will be using the concepts of deep CNN to build an automated system of age and gender identification by utilising multiple facial images.
Assumptions and Constraints
We are analysing the datasets to choose the best one. Once we finalise the dataset we shall begin with the coding part. Achieving better accuracy in age prediction is quite the challenging part.
Stakeholders

Division of work and contributors

Time period		Activities or components of the project	Name/Register Number of the Individual Contributor	Names/Register Number of the Joint Contributors
From Date	To Date			
2nd Jan 2023	2nd Jan 2023	Shortlisting projects with base paper	Nithish Kumar	Anweasha Saha
3rd Jan 2023	3rd Jan 2023	Finalising a project and reading the base paper	Anweasha Saha	Nithish Kumar
4th Jan 2023	5th Jan 2023	Preparing the ppt for zeroth review presentation	Nithish Kumar	Anweasha Saha
10th Jan 2023	11th Jan 2023	Received instructions for further work to collect journal papers	Anweasha Saha	Nithish Kumar
20th Jan 2023	24th Jan 2023	Summarising all the papers to make literature survey	Anweasha Saha	Nithish Kumar
28th Jan 2023	29th Jan 2023	Deciding our final methodology	Nithish Kumar	Anweasha Saha
4th Feb 2023	5th Feb 2023	Working on Introduction of the research paper	Anweasha Saha	Nithish Kumar
7th Feb 2023	8th Feb 2023	Making detailed architecture for the decided model	Nithish Kumar	Anweasha Saha
12th Feb 2023	13th Feb 2023	Preparing related work for the research paper	Anweasha Saha	Nithish Kumar
16th Feb 2023	17th Feb 2023	Completing the final draft of ppt and research paper for first review Presentation	Anweasha Saha	Nithish Kumar
25th Feb 2023	26th Feb 2023	Finishing with the remaining part of the pre-processing steps	Nithish Kumar	Anweasha Saha
3rd Mar 2023	4th Mar 2023	Implementing Face Alignment on the processed images	Anweasha Saha	Nithish Kumar
15th Mar 2023	16th Mar 2023	Implemented and trained various pretrained models with our base model	Nithish Kumar	Anweasha Saha
1st Apr 2023	2nd Apr 2023	Model Hyper parameter Tuning	Anweasha Saha	Nithish Kumar

25th Apr 2023	26th Apr 2023	Working on Evaluation Metrics	Anweasha Saha	Nithish Kumar
28th Apr 2023	3rd May 2023	Finalizing the documentation and finishing the research paper	Nithish Kumar	Anweasha Saha

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Summary record of major progress meetings with supervisors

Summary record of major progress meetings with supervisors			**Working title of dissertation/research project:**	
Meeting date & supervisors present	**Progress since last meeting**	**Agreed programme of work and target dates**	**Other issues, e.g. facilities, supervision, training needs, etc.**	**Date of next meeting**
5th Jan 2023	Presented the title and Idea of the project	Agreed on Age and Gender Classification using Convolutional Neural Networks with Retina Images	Nil	18th Feb 2023
18th Feb 2023	Presented the proposed architecture and completed the initial phase of the project	Satisfied and agreed to the methodology proposed	Nil	18th Mar 2023
18th Mar 2023	Presented 70% of code implementation and model results	Agreed upon the code and suggested few enhancements	Nil	

Worksheet / Data collection / Observation etc

Dataset Used (Adience)

The Adience dataset, containing 26,580 photos across 2,284 subjects, is as close as it can get to the real-world face imaging conditions. It comes with a binary gender label and eight distinct age groups, sectioned into five splits. The images were crawled from Flickr albums which were uploaded from smartphones without any filtering. As a result, the dataset has a diverse collection of faces having variations in all aspects such as pose, appearance, lighting, image quality and so on.

For the age group and gender classification, Adience dataset was employed to train our network.

Results and Discussions

In this subsection, the outcomes of conducting an analysis of the suggested procedure using the Adience dataset are shown. The numerical findings, also known as the accuracies, for both the age classification and the gender classification tasks are presented in the table that can be found further down below. In order to estimate gender and age, we have used a binary classification for the former and a multi-class classification for the latter. In terms of correctly identifying a person's gender, our CNN model obtained an accuracy of 84.68%. The age prediction is reviewed in order to place the subject in the appropriate age range among the four groups, which are as follows: children (ages 0 to 12), teenagers (ages 13 to 30), adults (ages 31 to 55), and seniors (ages 56 and older) (56 and above). On the Adience dataset, the accuracy of the model was measured at 40.29 percent for this particular metric.

When the face alignment was correct, which is to say when the subject was looking directly into the camera, the model had better results. In certain cases, the performance of the model was negatively impacted by quite insignificant shifts in the alignment. The CNN architecture had trouble recognizing the side facial profile in those particular circumstances, which had an impact on the numbers.

It's possible that our model requires either more data or larger datasets in order to be properly trained, which would explain the decreased accuracy of the age estimate. The results would be improved if additional data were input into the model.

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