

AGE AND GENDER RECOGNITION USING DEEP LEARNING

Project Proposal

Feb 11, 2018



Mustafa Al-Turki

201351850

Majed Alshaibani

201381710

Haitham Albetairi

201379790

Table of Contents

Introduction	2
Purpose of This Document	2
Scope of the Project	2
Project Overview	2
Problem Statement	2
Objectives	3
Planned Schedule	4
Team Contribution	5
References	6

Introduction

Purpose of This Document

This document first introduces the need of age and gender recognition system that automates the process of detecting the age and gender of a person using an image of their face. In addition, it provides the objectives and an initial tentative plan for the project in the entire 15-week period including deliverables expected after every week.

Scope of the Project

Project Overview

This project aims to produce a model capable of classifying age and gender using deep learning algorithms. The images are acquired from a camera using OpenCV camera handling package in Python. The classification models will be trained using TensorFlow or Caffe Deep Learning libraries.

Problem Statement

Interest in facial and age recognition grew rapidly in the last decades due to its importance in cutting-edge web and mobile applications. Every day, dozens of personal photos are stored on social media applications, and the need to analyze them will facilitate a better user experience [1]. Uses of such a technology varies from security to identification, and human-machine interactions. The significant advances in this area can produce models that are able to outperform even human abilities [2]. Since many languages have grammatical genders, these models might be capable of using proper linguistic attributes and words when interacting with humans. Such is an example of an adequate solution for a problem in this area [3].

Objectives

We propose to review the available literature about age and gender classification, the existing algorithms, implementations and applications of this topic. After that, a dataset will be collected, and various image preprocessing techniques will be done using already built packages and libraries, in case that the data is unlabeled, then some tools will be used to achieve that. Next, a pre-built model will be used on the dataset and the performance will be measured. Following that, our own neural network model is to be built and tuned. After that, the model will be deployed on the Android platform, Finally, an extensive testing and quality assurance measures is to be applied on the application.

Planned Schedule

Week	Tasks and events	Description	Deliverables	Date of Submission	Weight
2	Research literature Get familiar with necessary tools and libraries	Understand the scope of the problem, and the environment that will be used in the project.	None		
3	Data Collection Performing basic image processing techniques.		Initial Plan Document	8/2	5%
4	Requirement specification Incremental development plan	Detailed incremental development iterations plan (involves feature implementation plan)	Requirements Document Detailed Plan	15/2	15%
5-8	Analysis, tuning and testing of DNN model		Initial release Version 0.1	15/3	20%
9	Progress report	A written report about the achieved work	Progress report	22/3	10%
10-11	Deployment on Android		Release 0.2	5/4	10%
12-13	Finalization and Testing			19/4	
14-15			First version, Version 1.0	3/5	20%
	Project Report Presentation			3/5	15%
	Project Videos (3-5 minutes)			3/5	5%

Team Contribution

ID	Name	Tasks
201351850	Mustafa Al-Turki	Resources collection, proposed the initial plan, provided the objectives
201381710	Majed Alshaibani	Problem Statement, Review Initial Plan
201379790	Haitham Albetairi	Cover Page, Proofreading & Revision

References

- [1] Convolutional Neural Networks for Age and Gender Classification, Ari Ekmekji,
http://cs231n.stanford.edu/reports/2016/pdfs/003_Report.pdf

- [2] DAGER: Deep Age, Gender and Emotion Recognition using Convolutional Neural Network,
[arXiv:1702.04280](https://arxiv.org/abs/1702.04280)

- [3] Age and Gender Classification using Convolutional Neural Networks
<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.722.9654&rep=rep1&type=pdf>