Real and Fake Face Detection

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1. Abstract

2. Introduction

After receiving paper reviews, authors may optionally submit a rebuttal to address the reviewers' comments, which will be limited to a **one page** PDF file. Please follow the steps and style guidelines outlined below for submitting your author response.

Note that the author rebuttal is optional and, following similar guidelines to previous CVPR conferences, it is meant to provide you with an opportunity to rebut factual errors or to supply additional information requested by the reviewers. It is NOT intended to add new contributions (theorems, algorithms, experiments) that were not included in the original submission. You may optionally add a figure, graph or proof to your rebuttal to better illustrate your answer to the reviewers' comments.

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2.1. Sample

Sample

3. Related Work

4. Method

4.1. Datasets

[2, Dataset]

4.1.1 Simple CNN

A simple CNN network can be used to test the correctness of program exectution and observe the flow of data. Because of its brief structure, it can significantly reduce the cost of computing resources. At the same time, it can alos be used as one of the benchmark performance indicators for comparison and analysis with other types of subsequent network models.

This convolutional neural network is designed for image classificaion, structured with an input layer which taks 3-channel RGB images, followed by three convolutional layers, each with a 3x3 kernal and padding of 1, progressively increasing the number of filters from 32 to 64 and finally 128. Each convolutional layer is followed by a ReLU activation function and a 2x2 max pooling layer. The output is flattened and passed throught two fully connected layers. The first FC layer transforms the feature map into 512 features, followed by another ReLU, and the second FC layer reduces it to 2 outputs for classification.

4.1.2 Improved CNN

The Improved CNN represents an enhancement of the previous 'SimpleCNN' model. it is designed to achieve better performance by adopting serveral architectural adjustments to increase the network's capacity and reduce overfitting.

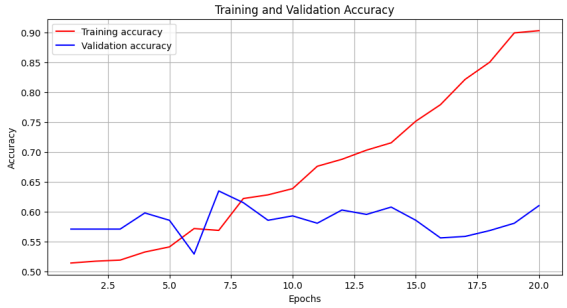

Figure 1. Training and Validation results of simple CNN with the compact dataset

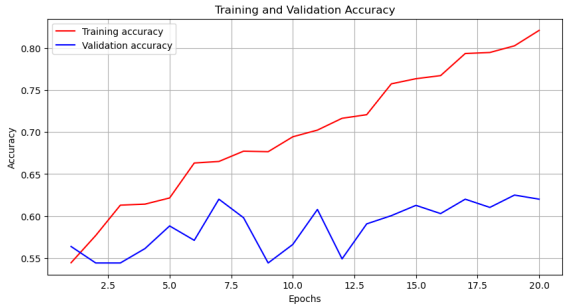

Figure 2. Training and Validation results of improved CNN with the compact dataset

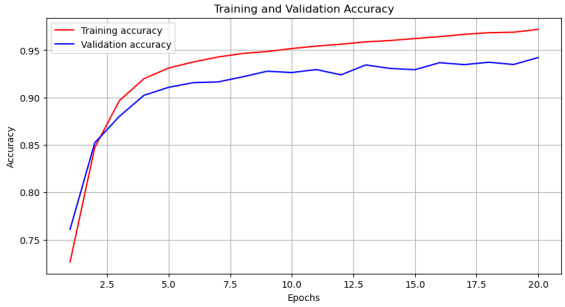

Figure 3. Training and Validation results of simple CNN with the large-scale dataset

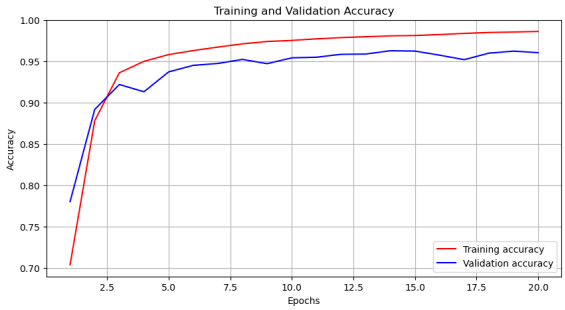

Figure 4. Training and Validation results of improved CNN with the large-scale dataset

Compared with the basic version of CNN, the improved version of convolutional neural network has been improved in the following aspects: An additional convolutional layer has been introduced; The depth is increased with 256 filters; Each convolutional layer is now followed by a batch normalization layer; A dropout layer with a rate is introduced before the first fully connected layer; Also an increased fully connected layer capacity, transforms the feature maps into a larger dimensional space.

5. Experiments

5.1. Dataset 1

WIP

5.2. Dataset 2

WIP

5.3. Cross-datasets Training

5.4. Dataset generated by GAN network

6. Findings

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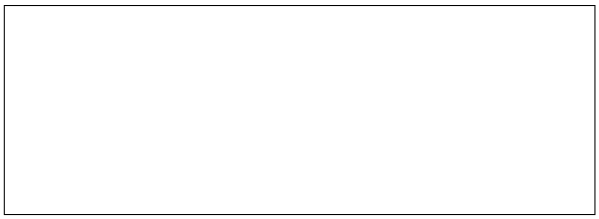

Figure 5. Example of caption. It is set in Roman so that mathematics (always set in Roman: $B \sin A = A \sin B$) may be included without an ugly clash.

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\usepackage[dvips]{graphicx} ...
\includegraphics[width=0.8\linewidth]
                {myfile.eps}
```

7. Conclution

References

[1] FirstName LastName. The frobnicatable foo filter, 2014. Face and Gesture submission ID 324. Supplied as additional material `fg324.pdf`. 2

[2] Seonghyeon Nam, Hyolim Kang, Dongyoung Kim, Sejong Yang, et al. Dataset: Real and fake face detection, 2019. 1