FUNDAMENTAL OF IMAGE PROCESSING

IRMA ZAFIRAH | A19EC0054
NURUL SYAMIRA | A19EC0145
NOOR ARINIE | A19EC0121

TABLE OF CONTENTS

01

INTRODUCTION

INTRODUCTION

Preprocessing data is a common first step in deep learning to prepare raw data in a format that the network can accept. This project focuses on classifications of object patterns and preprocessing of the images for features extraction.

02

EXPERIMENTAL DATA USED

ARABIC ALPHABET

6 patterns

alef (أ), beh (ب), dal (د), feh (ف),

hah (ح) and waw(و)

TRAIN

12000

TEST

3000

03

PROBLEM OF THE DATA

PROBLEM OF THE DATA

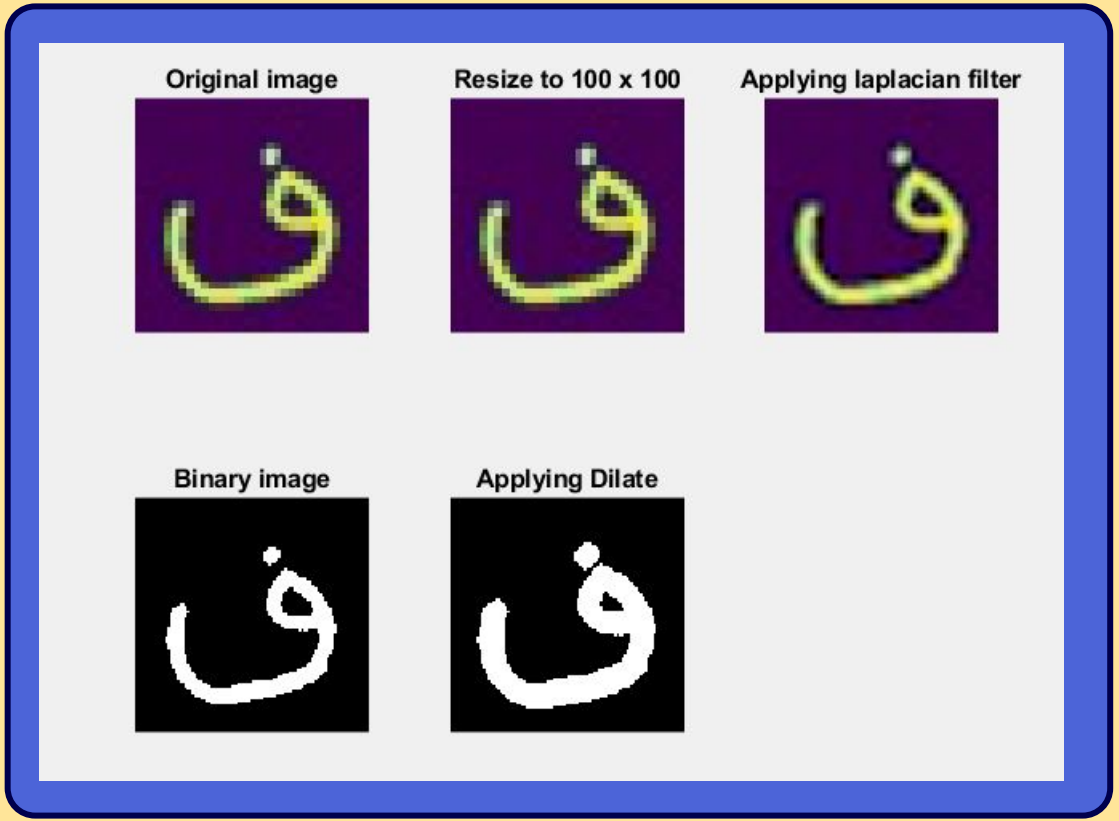
- Size too small
- Image not sharp
- Image looks blurry
- Original image have background color
- Some edges missing during image enhancement

04

QUALITATIVE PICTURE

QUALITATIVE PICTURE

Original image -> Resize image -> Laplacian filter -> Binary image -> Morphological process

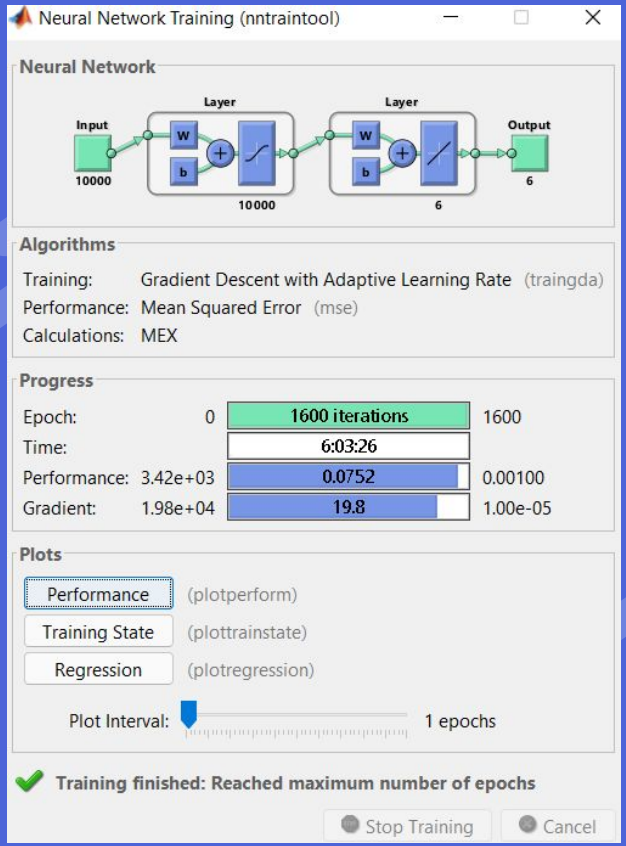


05
QUANTITATIVE RESULT

300 TRAIN

100 TEST

6 CLASSES



BENCHMARK RESULT

360 Train

60 Test

6 Classes

```
wrong rate :

ans =

    6.6667


D =

     9     0     0     0     0     0
     0    10     0     0     0     0
     0     0     5     0     0     0
     0     0     1    10     0     1
     1     0     0     0     8     0
     0     0     1     0     0    14


ans =

     6     6

recognition rate is :
   93.3333
```

```
cnt =

    67    55    70    60    53    55
```

```
end of training

cnt =

     9    10     5    12     9    15
```

OUR RESULT

```
wrong rate :

ans =

    92


D =

     0     0     0     0     0     0
     0     0     0     0     0     0
     0     0     0     0     0     0
     0     0     0     0     0     0
     0     0     0     0     0     0
    18    21    19    10    24     8


ans =

     6     6

recognition rate is :
     8
```

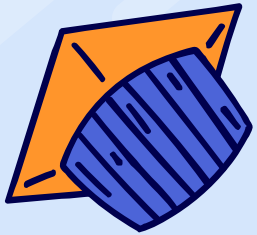
```
cnt =

   300     0     0     0     0     0
```

```
end of training

cnt =

   100     0     0     0     0     0
```



THANK YOU