IDENTIFY AND COUNT THE NUMBER OF COWS ON THE FARM

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There is no indication that the pace of technological advancement will slow down in the next years. Our lives are increasingly being influenced by artificial intelligence; have a look around to see what the AI is doing for you in the background. A convolution neural network was used to train this model to identity and count the numbers of cows ON the farm (CNN). [1] Because they are designed specifically to handle pixel data, CNNs are used in image detection and processing. The majority of the information was gathered online.

1. Introduction

[2] When it comes to computing, this is the rate at which technology doubles every 18 months. Over 89% of the time in the past two years, big data was produced. The future of technology doesn't seem to be slowing down, but rather accelerating. People therefore naturally prefer to combine as many technology and concepts as they can. Once it is integrated, efficiently multitasking is no longer a problem. This may act as a starting point for future studies.

Thesedays, there is a constant increase in the demand for smarter technologies and equipment. To perform like a person, artificial intelligence is an excellent tool. The task can be completed faster and with greater accuracy and sophistication. In this post, we use a particular type of neural network called CNN. [3] It is a specific kind of artificial neural network that substitutes convolution for standard matrix multiplication in at least one of its layers. They are used in image processing and recognition and are designed specifically to handle pixel data.

2. Description of the model

CNNs are frequently compared to how the brain processes vision in biological creatures. In this model, we have taught AI to recognize cows, there are different types of cows, data are taken from different angles of cows, when AI can recognize them

without mistake animals other than cows. There are roughly 250 photos for AI for model testing.

```
Model: "sequential_6"
_________________________________________________________________
 Layer (type)                Output Shape              Param #
=================================================================
 conv2d_23 (Conv2D)          (None, 100, 100, 32)      2432

 max_pooling2d_20 (MaxPoolin  (None, 50, 50, 32)       0
 g2D)

 conv2d_24 (Conv2D)          (None, 50, 50, 64)        51264

 max_pooling2d_21 (MaxPoolin  (None, 25, 25, 64)       0
 g2D)

 conv2d_25 (Conv2D)          (None, 25, 25, 128)       204928

 max_pooling2d_22 (MaxPoolin  (None, 12, 12, 128)      0
 g2D)

 flatten_6 (Flatten)         (None, 18432)             0

 dense_22 (Dense)            (None, 512)               9437696

 dense_23 (Dense)            (None, 1028)              527364

 dense_24 (Dense)            (None, 1028)              1057812

 dense_25 (Dense)            (None, 6)                 6174

=================================================================
Total params: 11,287,670
Trainable params: 11,287,670
Non-trainable params: 0
_________________________________________________________________
```

Fig 1: Creating the CNN

3. Result

The train was 100 % accurate.

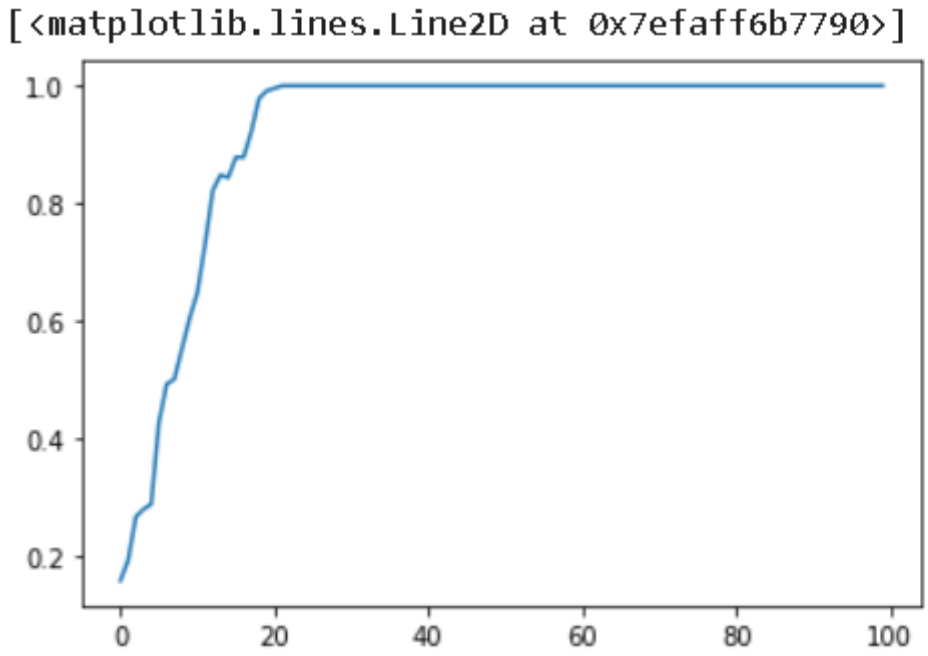

Figure 2: Model accuracy

We put the model to the test with 5 cows images.

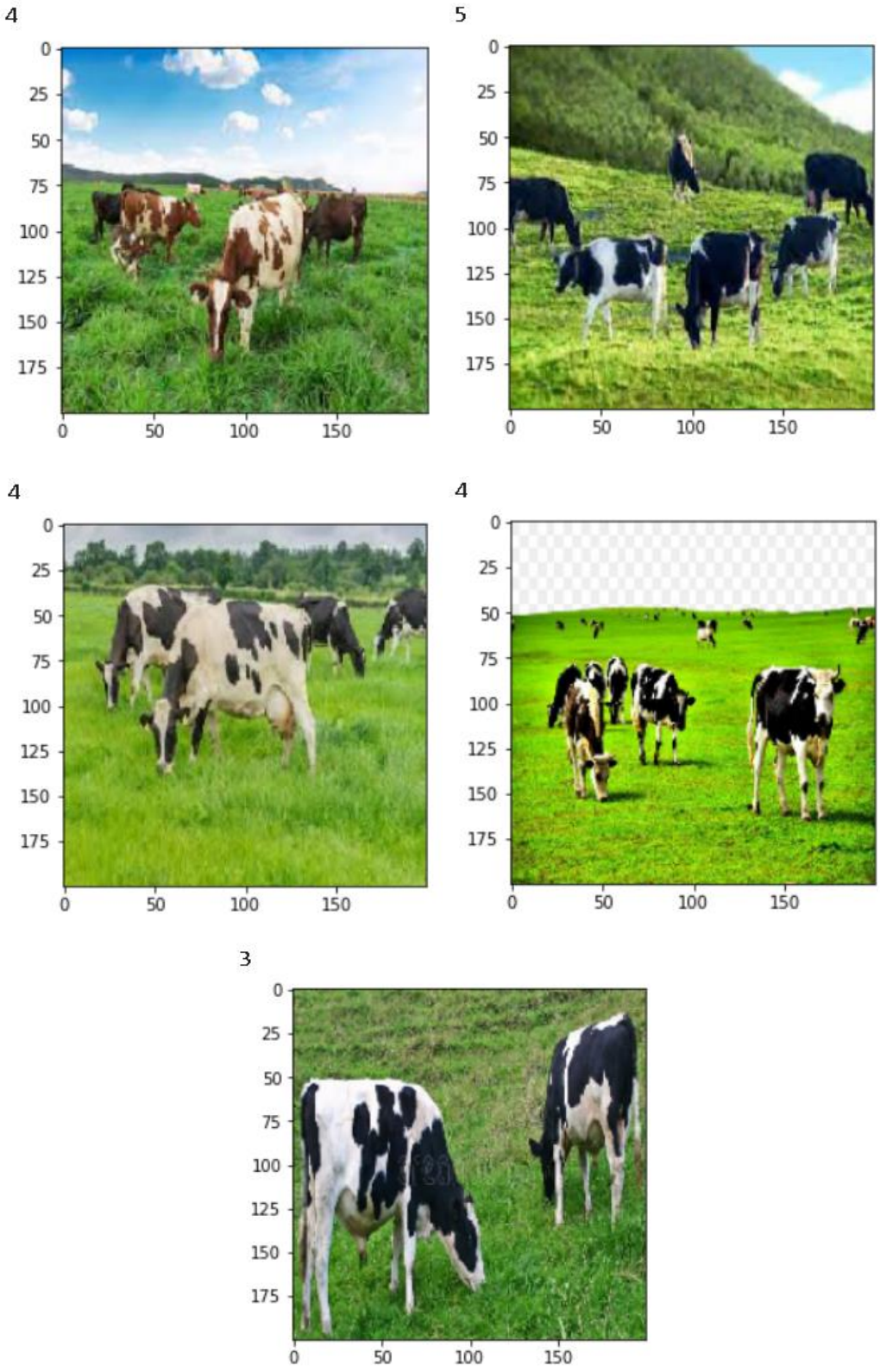

Fig 3: Testing with some cows pictures

4. Conclusions

Although the train was 100% accurate, the AI still recognized and counted the number of cows incorrectly in some photos. This is probably because the quality of the image is not clear, making the model's identification inaccurate.

5. Disclaimer

The author are responsible for the facts and the accuracy of the content and information contained here, have expressed their opinions in this report's contents. This document is not intended to be a standard, specification, or law.

6. References

[1] Convolutional neural network - Wikipedia

[2] **Paul Michael**, How Fast is Technology Advancing? [Growth Charts & Statistics] 2022, MediaPeanut

How Fast Is Technology Advancing? [Growth Charts & Statistics] 2022 (mediapeanut.com)

[3] Artificial intelligence - Wikipedia