Fontys Hogescholen ICT

Open Programme

Project Report

Dogs Breed Identification by Zhaklin Yanakieva

Zhaklin Yanakieva

Eindhoven, 18/06/2021

Overview:

Convolutional neural networks (CNN) have been used to great effect in applications such as object classification, scene recognition, and their applications. The aim of this project is to create a dog breed identification application using CNNs. This design can be applied to image classification problems. The code will accept images of dogs as input. If a dog is detected in the image, it will provide an estimate of the dog's breed.

Modelling:

Evaluation Metrics:

The evaluation metrics of this problem is simply the Accuracy Source for the designed algorithm. At first, I used CNN after processing the images to be the same size. The small number of train images was about to create a problem and make the model overfitted. Fortunately, after researching, I decided to use ‘transfer learning’ to minimize the overfitting as much as possible. Eventually, the results showed 80%, which is quite accurate.

Conclusion:

To conclude, in this project I built and trained a CNN model from scratch as well as applied transfer learning with the intention to improve the model’s accuracy from 3.2% to 81% because of the small number of train images. What I did not expect, but impressed me the most was how transfer learning can be used to increase accuracy while reducing training time significantly. I started this project with the aim of getting started with neural networks and I had the opportunity to find the best techniques for training this model.