UNIVERSITY OF LIVERPOOL

Cloud-Computing

Deep Learning in the cloud

Deep Learning on AWS with SageMaker

Take an example from AWS Sagemaker: this figure is taken AWS Sagemaker library and related to protecting people through virtual boundaries with computer vision. We have selected this example because we want to show how with the help of Sagemaker we can practically implement a solution. At the start, we can see that collection, and preparation of the dataset starts in the first block where we can fetch the data and store data in Amazon storage services such as Amazon S3. In the next block within the SageMaker, we can see we have the functionality which we have discussed in the last slide we have seen how to train the models so training models with the help of an AWS marketplace and all the libraries are available and it supports Jupyter notebook so here with SageMaker we can do whatever we like such as training model, evaluating the model, and testing and validation of the model. And if we want to deploy the model on the web then we can see on the right-hand side with the help of deepens we are fetching data or any IoT device can fetch the data and we can pass this to our model which we have trained to get the output.

Google Cloud Machine Learning Services

Here we will see an example of deep learning with GCP. This example has been taken from the Google Cloud vision library. In this example. Step one is the user uploads images on the Google cloud platform after that image is stored on Google cloud storage the new image notification will be sent to the app engine and the app engine calls machine learning API then this engine will call auto ML vision library and vision API to find the correct label off the uploaded image which will be the predicted label. This shows a workflow on the Google Cloud platform to predict the label of the unseen image.

Microsoft Azure Machine Learning

An example of Azure Machine learning is given in this figure. We can see the image captured through the mobile app will be sent to a storage blob and queued to a computer vision tool to process and predict the label. The predicted label will be stored in any form of database and

information will be conveyed to the user via the web app. If the user is not interested in the label and wants to perform analytics, then the application insight app will be used to forward the data to Power BI.