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Review Article

ARTIFICIAL INTELLIGENCE IN ONLINE SHOPPING USING NATURAL LANGUAGE PROCESSING (NLP)

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Abstract
Natural language processing is a process by which particular software is used to convert the speech and texts. To produce human and natural languages it combines computational linguistics with AI. The entire process can be subdivided as 3 different parts integrated statistical model to run the speech recognition, which converts e natural language into the programming language and the resultants decide what was said. This process is called the speech process for text. Natural language understanding is a domain in which the study is made to understand how a particular Artificial Intelligence can comprehend and interact with a human. Starting from a single word to complex sentences and even in the understanding of various poems and big literature can be achieved by this method. And only after this the various famous product of Apple's Siri and Microsoft's Cortana has come up with.

Keywords: Artificial Intelligence, Language Processing, Microsoft's Cortana.

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INTRODUCTION

Almost 40% of human jobs are already automated which is high. This has given ideas of using the Natural language and its capacity in various fields. Natural language understanding involves reading and comprehending the meaning and translates into the language which can be interpreted and read by Artificial Intelligence.

Big search engines like Google uses this methodology so that its user can give input in various language that they are comfortable with and the AI performs its task to breakdown each word, comprehend the meaning and come up with the results.

LITERATURE REVIEW

Understanding the Natural Language

To understand the natural language these steps and procedures are to be followed.

- Processing of the natural language
- Understanding of the natural language
- Machine learning
- Deep learning

Processing of the Natural Language

Natural language processing is a method by which the AI understands and comprehends the meaning from human language or communication in a useful manner. This may include translating, summarizing, relationship extraction, analysis of sentiments, topic segmenting and recognition of speech. This NLP is used in text mining, automated question answering, and machine translation.

NLP – Components:

The NLP Components are of two various types

- Natural language understanding
- Natural language generating

Natural Language Understanding

- Mapping inputs in useful representations Analysing the language.

Natural Language Generating

This is the process by which meaningful sentences and phrases are formed.

This actually involves the following procedures

- Text planning
- Sentences planning
- Realising

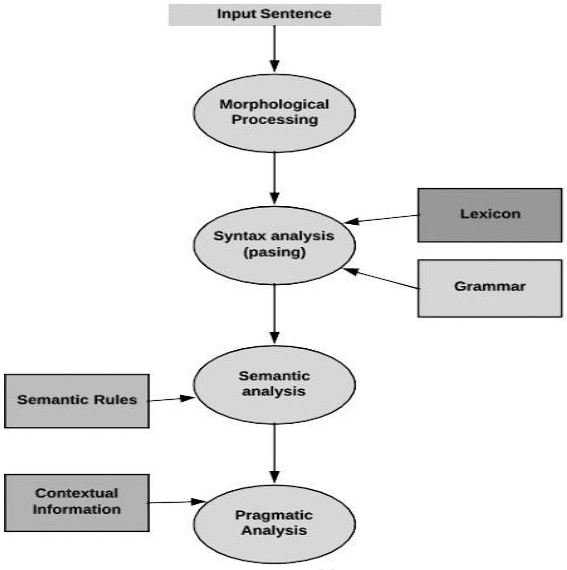

Figure 2.1: Steps on Natural language generating

Machine Learning

Machine learning is a capacity of the machines to analyze a set of data and build generic algorithms. There is no need to write codes, just feeding of data is enough it builds its logic based on it.

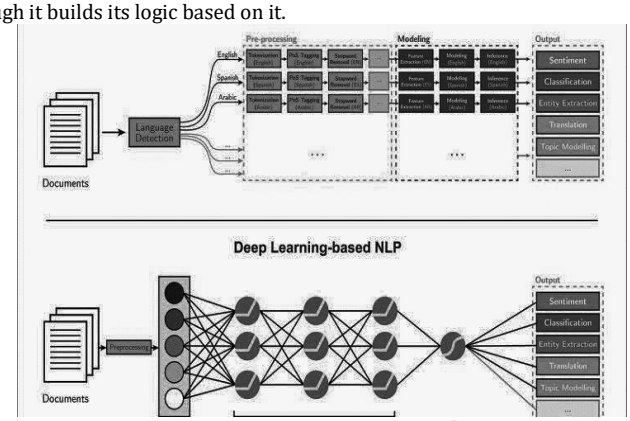

Figure 2.2: Deep Learning Based NLP

There are majorly two types of machine learning

- Supervised learning
- Un supervised learning

Supervised Learning

From the above context itself, it is so much evidence that there must be some supervisor as a teacher to carry on the process. Usually in this methodology, the training or the teaching is provided.

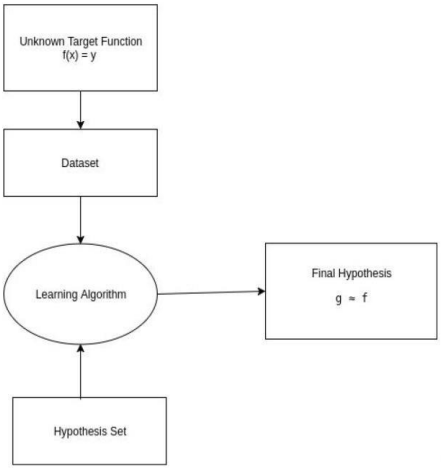

Figure 2.3: Supervised Learning

For Example, if it is to train to identify various kinds of fruits it must be like the shape of the fruit is round and a cavity is found at the top center and the colour must be red. Which signifies Apple?

If the shape is curved and long enough with the colour of green or yellow then it must be Banana.

Now after this training it is given with another set of examples to identify.

Un Supervised Learning

This second type of learning in which there is no supervision or guidance required is called unsupervised learning. Here it can act without any guidance required.

For example, if a picture of dogs and cats is given together to analyze, it has no information on Cats or Dogs. But still, it can categorize based on the similarities between them by analyzing the patterns, Size, shape, figures, and differences.

Deep Learning

Deep learning is yet another fascinating example of driverless cars. This actually teaches the machines how to think naturally as how a human does. This uses the method of learning by example this method is also incorporated for voice controls in Phones, tablets, TV and speakers.

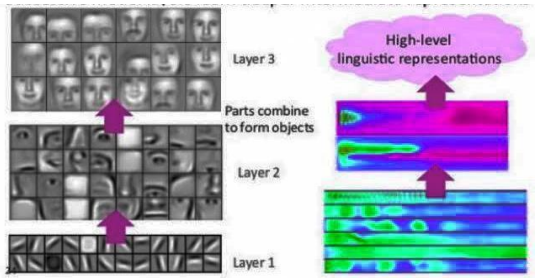

Figure 2.4: Diagram of Successive model layers learn deeper intermediate representations

SYSTEM ANALYSIS

This chapter deals with the analysis of the existing systems and the drawbacks and faults can be discussed.

1) Existing Systems

The existing system of NLU in any online shopping is very less. Only very big Multinational Companies afford to use this. Example Flipkart and Alibaba groups. This current system that is used is not enough for creating this project because of its low competency and analysis.

2) The main Drawbacks in Existing system

Natural language Understanding is a new technology and many of the industries do not use this.

Due to low Computing capacity, the AI can predict something wrong too. To prevent these things there is a need for more computing and comprehending the power of high-level GPU.

3) Proposed Systems

The system that is proposed is t give the deep learning with natural language so that the understanding is more and the

accuracy is high. Thus with the neural network algorithms, the AI is trained and built most easily.

4) Project Definition

To create an Idea of AI model that predicts the given reviewing it as positive or negative. This project is completely focused on Flipkart Website for shopping and understanding it.

SYSTEM SPECIFICATION

The hardware and the software specifications of the projects are

1) Hardware Requirements

Processor: Intel I 7
Ram: 8 GB
Speed: 4.0GHz
GPU:Nvidia GTX/ RTX (Min 8GB RAM)
Hard disk Driver: 50 GB
Monitor: 15" Colour monitor

2) Software requirements

OS: Linux/ Windows/ MAC
Language: Python
Libraries: Pytorch, NLTK, Bokeh, BS4, Matplot lib, Pandas, Numpy.

PROJECT DESCRIPTION

1) Problem

Online shopping is a process by which the exchange of goods takes place over the internet where the buyer and seller come online to exchange goods. The customer finds a product on the website of the retailer and uses an online platform to buy the product.

The main idea of online shopping is to reduce time.

2) Idea

To create an AI model that predicts the given reviews is positive or negative.

3) Solution

The web scraping methods is used to scrape the reviews and process the NLTK and convert it as tensor and pass it on to the model.

4) Summary

The ultimate goal of the project is to analyze the reviews about a given product and give the output as positive or negative.

5) Techniques

Natural language Processing: NLP is a method through which the computers analyze, understand and derive the meanings from human language.

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

The combination of Artificial Intelligence along with NLP is going to give the result as positive or negative.

1) Web Scrapping

Web scraping or web data extraction is the process of extracting information's from the websites. They directly access the World Wide Web using Hypertext transfer protocol. This is used in Web Indexing, Web mining, etc. The process of web scrapping although can be done manually, but here it refers to an automatic process by using the web crawler or a bot. It is copied to the central database or a spreadsheet.

A web scraping process can be done by fetching and also by extracting it. This process involves taking something out of a page and using it in the other.

CONCLUSION

As a conclusion, We have nearly completed 40% of the project and the project for its successful completion needs high-end graphic cards. And also we have developed a high-end Web scrapping tool that can scrap the comments from the Flipkart and website product pages or any E-Commerce websites, This is the step/ procedure by which we have data to train the model.

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