INTERNATIONAL ISLAMIC UNIVERSITY CHITTAGONG

Lab report-7

Topic: Webinar Natural Language Understanding student project showcase plus AL program

Course code: CSE-3636
Course Title : Artificial Intelligence Lab

Submitted To:

> **Md Safayet Hossen**
> **Department of CSE**
> **International Islamic University Chittagong**

Submitted By:

> **Md.Riaz Ahmed**
> **Id: C201060**
> **Section: 6BM**
> **Semester: 6th**

Introduction:

Natural Language Processing (NLP) is a branch of computer science that focuses on the interaction between humans and computers using natural language. NLP is used to develop systems that can process and understand natural language input from humans, such as speech and text. In this lab report, we will explore the basics of NLP and some of the techniques used in natural language processing.

The webinar was about Natural Language Understanding. It discusses a paper. The paper is "Customer sentiment analysis using weak supervision for Customer-Agent Chat" Natural Language Understanding (NLU) is a subfield of Natural Language Processing (NLP) that focuses on the comprehension and interpretation of human language. It involves techniques and algorithms to extract meaning, context, and intent from text or speech. NLU enables machines to understand and analyze language at a deeper level, considering nuances, context, and user intent. It encompasses tasks such as sentiment analysis, named entity recognition, semantic role labeling, and language modeling.

NLU plays a crucial role in applications like chatbots, voice assistants, sentiment analysis, and language translation, enhancing the accuracy and effectiveness of human-computer interactions. Key Contributions:

• Applied existing concepts to new data sets

• Used different way to generate weak labels

 • Benchmarked with google cloud NLP API's

• Domain-specific analysis

Methods:

To better understand NLP, we first need to understand some of the basic techniques used in this field. The following are some of the techniques commonly used in NLP:

Tokenization: This technique involves breaking up a sentence or paragraph into individual words or tokens. This is an important step in NLP because it allows the computer to analyze each word separately and understand the context in which it is being used.

Part-of-Speech (POS) Tagging: This technique involves labeling each word in a sentence with its corresponding part of speech, such as noun, verb, adjective, etc. This is

important in NLP because it helps the computer understand the grammatical structure of a sentence.

Named Entity Recognition (NER): This technique involves identifying and classifying named entities in a sentence, such as people, organizations, and locations. This is important in NLP because it allows the computer to extract information from text and understand the relationships between different entities.

Sentiment Analysis: This technique involves analyzing text to determine the sentiment or emotion behind it, such as positive, negative, or neutral. This is important in NLP because it allows the computer to understand the tone of a message and respond appropriately.

My self project Link: https://github.com/riazahmedmahin/Face-Eye-Detection-open-cv-

Results:

NLP is used in many different applications, including chatbots, voice assistants, and machine translation. One example of NLP in action is Google Translate, which uses machine learning algorithms to translate text from one language to another.

Another example of NLP in action is Siri, the voice assistant used on Apple devices. Siri uses NLP techniques to understand natural language input from users and respond appropriately. For example, if a user asks "What's the weather like today?" Siri will use NLP to understand the user's question and provide a relevant response.

Conclusion:

NLP is a rapidly growing field that has the potential to revolutionize the way we interact with computers. By understanding the basics of NLP and the techniques used in this field, we can develop more advanced systems that can process and understand natural language input from humans. As technology continues to advance, we can expect to see more applications of NLP in our daily lives, from chatbots to voice assistants to machine translation