PROJECT PROPOSAL: ENHANCING SENTIMENT ANALYSIS THROUGH NATURAL LANGUAGE PROCESSING (NLP)

* **Author:** Alisha Rath
* Course: CS200W
* **Date:** 18October 2023

TABLE OF CONTENTS

I. Introduction ............... 1

II. Problem Statement ............... 2

III. Research Objective ............... 3

IV. History and Background ............... 4

V. Technical Approach/Methodology ............... 5

VI. Requirements ............... 6

VII. Progression Timeline ............... 7

VIII. References ............... 8

I. INTRODUCTION

Sentiment analysis, the automated process of analyzing and understanding sentiments expressed in textual data, holds significant importance in various domains. However, traditional sentiment analysis methods often struggle to capture the nuances of human language, including sarcasm, context, and cultural variations. This project focuses on leveraging Natural Language Processing (NLP) techniques to improve the accuracy and efficiency of sentiment analysis.

II. Problem Statement

The general area of investigation involves enhancing sentiment analysis accuracy and efficiency using NLP techniques. Specifically, we aim to overcome the limitations of traditional sentiment analysis methods in capturing nuances, sarcasm, context, and cultural variations present in human language. Our goal is to develop a more precise sentiment analysis model that can effectively understand and classify sentiments.

III. Research Objective

This project aims to develop a sophisticated sentiment analysis model utilizing advanced NLP techniques. The goal is to accurately classify sentiments in textual data, taking into account the complexities of human language. The steps to achieve this objective include leveraging deep learning models and linguistic analysis, training the model on labeled datasets, and evaluating its effectiveness through various metrics.

IV. History and Background

The need for enhanced sentiment analysis arises from the limitations of traditional methodologies in accurately interpreting sentiments. Traditional approaches often fail to account for the subtleties and nuances of human language, leading to less accurate sentiment classification. By employing advanced NLP techniques, we aim to address these limitations and provide a more comprehensive understanding of sentiments expressed in textual data.

V. Technical Approach/Methodology

The project will involve major steps such as gathering labeled datasets, leveraging deep learning models (e.g., recurrent neural networks, transformers), and implementing linguistic analysis to develop a robust sentiment analysis model. The model will undergo training and fine-tuning to grasp the intricacies of human language, improving sentiment classification.

VI. Requirements

To complete this project, we will require access to relevant NLP libraries (e.g., NLTK, spaCy), labeled sentiment analysis datasets, and computational resources capable of training and running deep learning models. All required resources are freely available.

VII. Progression Timeline

A simple Gantt chart will be constructed to outline the estimated timeline of the project, aligning with the 16-week semester duration.

VIII. References

[Include IEEE formatted references for all sources cited in the proposal.]