

Department of Artificial Intelligence and Machine  
Learning  
Ramaiah Institute of Technology  
(Autonomous Institute, Affiliated to VTU)

# **ConverseAI : Leveraging AI for Dynamic and Contextual Rephrasing in Corporate Communication**

REPORT

## **SUBMITTED BY**

<b>Kalpitha S Naik</b>	<b>USN:1MS22AI022</b>
<b>Khushi D K</b>	<b>USN:1MS22AI023</b>
<b>Megha Prasad</b>	<b>USN:1MS22AI027</b>
<b>Rajatha</b>	<b>USN:1MS22AI047</b>

As part of the Course Natural Language Processing– AI53

## **SUPERVISED BY**

Faculty  
**Dr. A. Ajina**

DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING  
RAMAIAH INSTITUTE OF TECHNOLOGY  
Oct 2024 –Jan 2025

## **CERTIFICATE**

This is to certify that Name: Kalpitha S Naik (USN:1MS22AI022), Name: Khushi DK (USN:1MS22AI023), Name: Megha Prasad (USN:1MS22AI027), Name: Rajatha (USN:1MS22AI047) have completed the “ConverseAI : Leveraging AI for Dynamic and Contextual Rephrasing in Corporate Communication” as a part of Natural Language Processing

Submitted by

Guided by

Name: Kalpitha S Naik    USN:1MS22AI022

Name: Khushi D K        USN:1MS22AI023

Name: Megha Prasad      USN:1MS22AI027

Name: Rajatha             USN:1MS22AI047

### Evaluation Sheet

Sl. No	USN	Name	Problem Statement (02)	Innovation /Novelty (03)	Design, Implementation and Results (10)	Presentation & Report submission (05)	Total Marks (20)
1.	1MS22AI022	Kalpitha S Naik					
2.	1MS22AI023	Khushi D K					
3.	1MS22AI027	Megha Prasad					
4.	1MS22AI047	Rajatha					

Evaluated By

Name: Dr. A. Ajina

Designation: Associate Professor

Signature:

<b>Sl. No.</b>	<b>Table of Contents</b>	<b>Page No</b>
1.	Abstract	5
2.	Introduction	5
3.	Literature Survey	5
4.	Methodology	6
5.	Implementation	6
6.	Results and Discussions	7
7.	Conclusion	8
8.	References	9

**Abstract:**

In today's digital age, effective communication is crucial, whether in professional environments or personal interactions. However, navigating the complexities of tone and emotion in written messages can often be challenging, leading to misunderstandings or misinterpretations.

**1. Introduction**

In today's digital age, effective communication is crucial, whether in professional environments or personal interactions. However, navigating the complexities of tone and emotion in written messages can often be challenging, leading to misunderstandings or misinterpretations. This Chrome extension leverages advanced Natural Language Processing (NLP) techniques to bridge this gap, helping users communicate with greater clarity and emotional intelligence. By providing a simple interface that allows users to rephrase sentences in various tones—such as professional, friendly, polite, or casual—this tool empowers individuals to express themselves more effectively across a wide range of contexts. Whether communicating with recruiters, colleagues, or friends, the extension ensures that messages are tailored to suit the emotional and professional expectations of the recipient. Incorporating cutting-edge NLP technologies, such as sentiment analysis and tone adjustment, this extension helps individuals become more mindful of how their words are perceived, ultimately contributing to more respectful, compassionate, and effective communication in an increasingly digital world.

**2. Literature Survey**

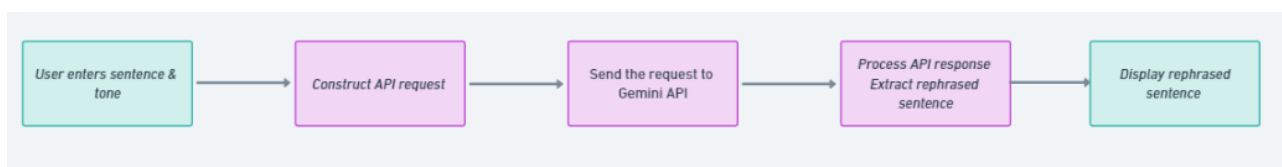
The efficiency of AI extends to a number of fundamental reading techniques, including identifying text structure, summarizing key concepts, paraphrasing, and looking for particular details. Chatbots and educational platforms, among other AI-enabled solutions, offer dynamic, individualized learning that helps students throughout their reading journey. Students get quick feedback and gain critical comprehension abilities [1]. One of the areas where we can make use of this tool is in Customer Support. Agents providing chat customer service must answer questions from clients quickly and with the utmost customer satisfaction. Because both the consumers and the agents may have different literacy levels, the agents' responses are generally of low quality if they are not specified. However, relying solely on static responses may drive away clients because they will feel as though they are no longer speaking to a human. To reduce response monotony, it is essential to have variations of the static answers [2]. All things considered, even though these tools might improve some writing, authors should carefully go over the main ideas of the source texts and grammatical structures in particular situations. Students who are new to writing should practice paraphrasing in the classroom under the supervision of their teachers [3]. Direct quotation, summary, and paraphrasing are some of the techniques that are commonly used in academic writing assignments. Approaching the model's Chrome extension section, Google Chrome launched a new extension architecture in 2009 that included an extension permission system, privilege separation within an extension, and strong isolation between webpages and extensions—all of which were designed to prevent and mitigate extension vulnerabilities also The severity of an assault would be constrained by the permissions of the core extension if a website or network attacker were to successfully insert malicious code into it [4]. A single browser kernel process operates in privileged mode to access platform and system resources on behalf of many renderer processes in Chrome's multi-process architecture. Every renderer process is equivalent to a tab-based web page. Since a renderer process operates in a sandbox, it is unable to directly access system resources like the network and disk. Such queries can only be sent to the browser process. A public key to the extension's URL, which serves as the location of all of its files in the local filesystem, is included by Chrome to specify the origin of an extension. An extension has default access to all of the origin's resources. An extension must have cross-origin permission in order to access another origin [5]. The Chrome extension, which has many

applications across various industries and hence enhances user experience by engaging with people in a personalized and understanding way.

### 3. Methodology

In our approach, we leverage an external API to rephrase sentences in a tone selected by the user. The process works as follows:

1. *User Input:* The user begins by entering a sentence and selecting a tone from a dropdown menu. This could be a tone such as "professional," "friendly," "casual," or others.
2. *Build the Request:* Based on the tone chosen by the user, we dynamically generate a prompt that includes both the original sentence and the specified tone. This allows us to tailor the request precisely to the user's preference.
3. *API Call:* We then send the constructed prompt to an external language model API, specifically Google's Gemini API, for processing. The API rephrases the sentence according to the selected tone.
4. *Display Result:* Once the rephrased sentence is returned, we display the result in a text box or input field for the user to view and use.



### 4. Implementation

The Chrome extension, which has many applications across various industries and hence enhances user experience by engaging with people in a personalized and understanding way. Here are a few significant applications and use cases:

#### *Corporate Communication:*

- Professionals can adjust the tone of emails, project proposals, and meeting notes to suit the level of formality required.
- The tool can help ensure consistency in communication across teams, whether the message needs to be authoritative, friendly, or motivational.

#### *Customer Service:*

- Customer support teams can use the extension to craft responses that are empathetic, clear, and polite, improving customer satisfaction.
- The extension can also help in situations where a more formal or neutral tone is needed, ensuring professionalism in all customer interactions.

#### *Recruitment:*

- Job seekers can rephrase their cover letters, resumes, and email responses to reflect a professional, confident, or enthusiastic tone.
- It can also assist in rephrasing answers during job interviews, helping candidates to sound more assertive or adaptable, based on the company culture.

### *Personal Messaging:*

- Users can adjust the tone of their text messages, emails, or social media posts to align with the intended audience, whether casual for friends or formal for acquaintances.
- It helps avoid misunderstandings, ensuring that the communication is neither too harsh nor too informal for the context.

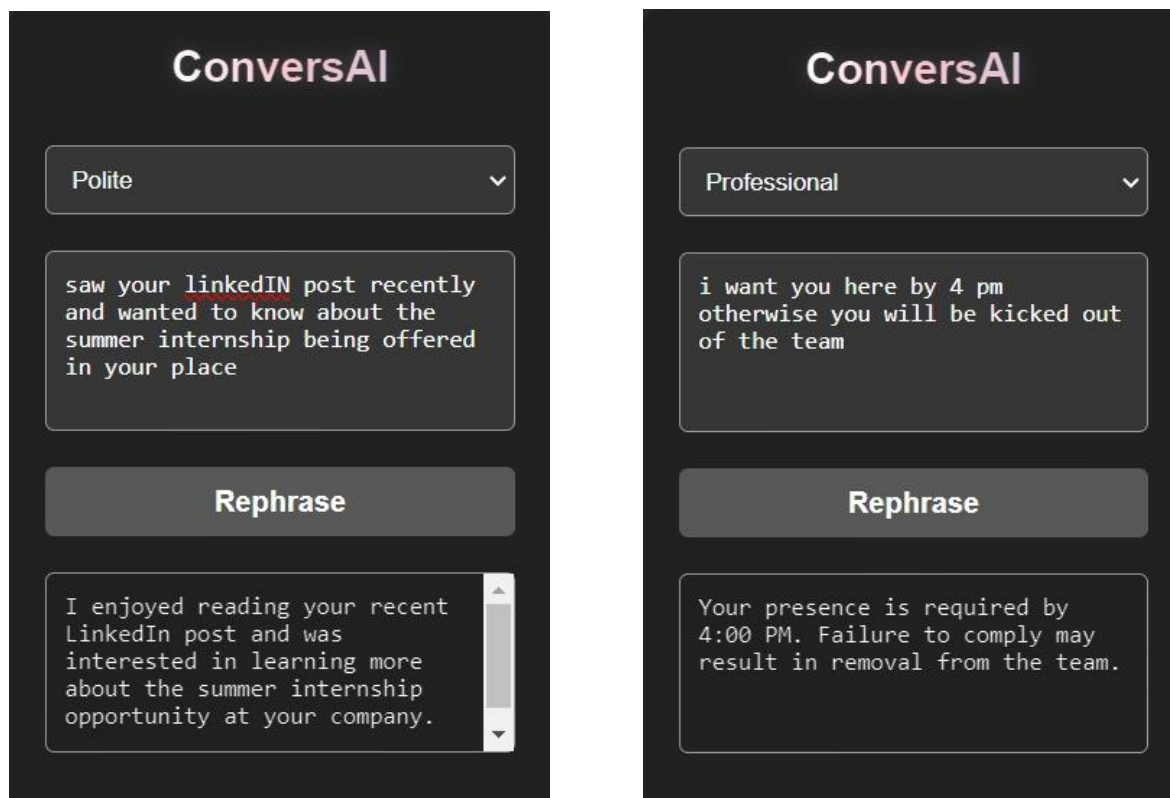
### *Conflict Resolution:*

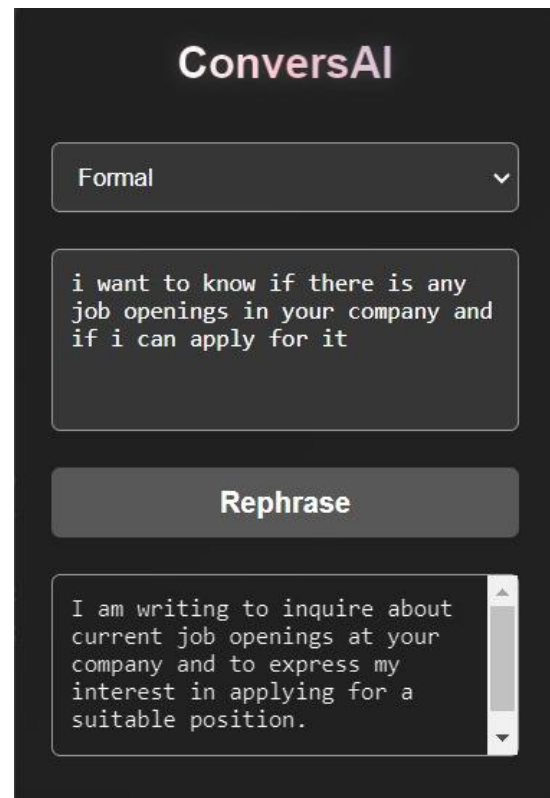
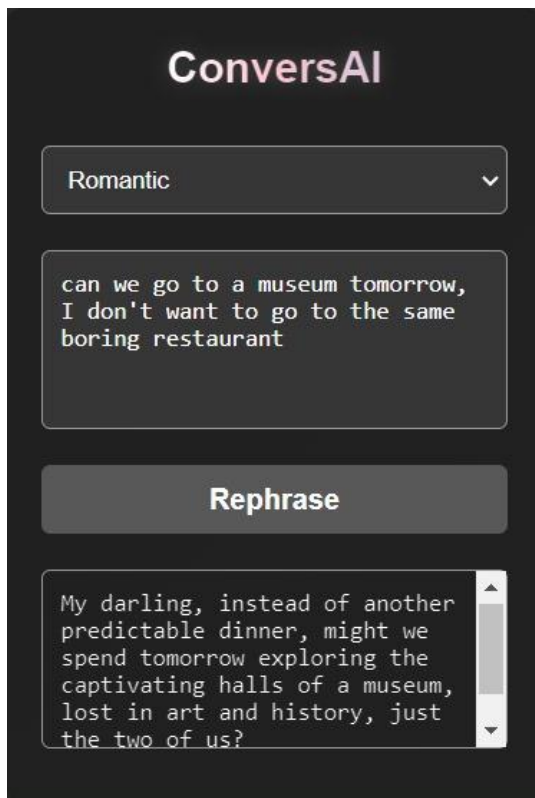
- The extension can assist in rephrasing tense or confrontational messages into a more diplomatic, neutral, or sympathetic tone, reducing misunderstandings.
- It can also help individuals resolve disagreements with reassurance, making the communication less confrontational and more cooperative.

### *Mental Health Support:*

- Therapists or counselors can use the extension to adjust the tone of their messages, ensuring they are comforting, empathetic, or motivational when working with clients.
- Individuals can also use it for self-reflection, rephrasing negative thoughts into a more optimistic or encouraging tone, promoting a positive mindset.

## **5. Results and Discussions**





## 6. Conclusion

In conclusion, this project demonstrates the potential of leveraging NLP and AI-driven techniques to enhance communication through a Chrome extension. By providing users with the ability to adjust their tone in real-time, the extension aims to improve interactions across various professional and personal contexts. While the project has shown promising results in terms of its functionality, there are still several opportunities for improvement and growth. These include enhancing tone detection accuracy, integrating multilingual support, and incorporating non-verbal cues such as emojis or voice tone for a more emotionally intelligent system. Furthermore, ensuring user privacy and data security will be crucial in fostering trust and adoption. The impact of such an extension goes beyond individual use, offering broader societal benefits by promoting more effective and empathetic communication. As organizations continue to embrace digital communication, tools like this can help bridge gaps in understanding, reduce miscommunications, and foster a more inclusive environment. By addressing the research gaps and exploring the opportunities for expansion, this project has the potential to pave the way for more advanced and universally applicable tools that can enhance human-computer interactions and support diverse communication needs.



## 7. References:

- [1] **Kondrateva, Makhmutova, Zinnatullina**, “LEVERAGING ARTIFICIAL INTELLIGENCE FOR ENHANCING READING SPEED, VOCABULARY, AND COMPREHENSION: AN INTEGRATED APPROACH”, March 2024 (<https://library.iated.org/view/KONDRATEVA2024LEV>)
- [2] **Sonal Garg, Sumanth Prabhu, Hemant Misra, G. Srinivasaraghavan**, “Unsupervised Contextual Paraphrase Generation using Lexical Control and Reinforcement Learning”, March 2021 (<https://arxiv.org/abs/2103.12777>)
- [3] **Thaweesak Chanpradit, Phakkaramai Samran, Siriprapa Saengpinit, Pailin Subkasinm**, “Paraphrasing Strategies and Levels of Proficiency of an AI-generated QuillBot and Paraphrasing Tool: Case Study of Scientific
- [4] **Nicholas Carlini, Adrienne Porter Felt, David Wagner**, “An Evaluation of the Google Chrome Extension Security Architecture”, January 2012 ([https://www.researchgate.net/publication/228448075\\_An\\_Evaluation\\_of\\_the\\_Google\\_Chrome\\_Extension\\_Security\\_Architecture](https://www.researchgate.net/publication/228448075_An_Evaluation_of_the_Google_Chrome_Extension_Security_Architecture))
- [5] **Lei Liu, Xinwen Zhang, Guanhua Yan, Songqing Chen**, “Chrome Extensions: Threat Analysis and Countermeasures”, 2012 (<https://www.semanticscholar.org/paper/Chrome-Extensions%3A-Threat-Analysis-and-Liu-Zhang/fde1a4806a8cfef90f1cc913156a13de81063f62>)