The HR Insight Sidebar Extension for LinkedIn Profile

Siddheshwar Patil

CSE(AI-ML)

D.Y.Patil College Of

Engineering and Technology,

Kolhapur, India

Siddheshwar.patil@gmail.com

Shraddha Budkewar

CSE(AI-ML)

D.Y.Patil College Of

Engineering and Technology,

Kolhapur, India

shraddhabudkewar@gmail.com

Prerna Choudhari

CSE(AI-ML)

D.Y.Patil College Of

Engineering and Technology,

Kolhapur, India

Prernachoudhari1447@gmail.com

Uttkarsha Bhise

CSE(AI-ML)

D.Y.Patil College Of

Engineering and Technology,

Kolhapur, India

uttkarshabhise48@gmail.com

Saurabh Herekar

CSE(AI-ML)

D.Y.Patil College Of

Engineering and Technology,

Kolhapur, India

herekarsourabh80@gmail.com

ABSTRACT

This paper explores the "HR Insights Sidebar Extension," which enhances LinkedIn profile evaluation through a chatbot, aiding informed decision-making with real-time analysis. AI-driven algorithms extract key information like skills, experience, and endorsements, generating concise summaries to streamline evaluations.

Leveraging the OpenAI Assistant API's Information Retrieval and Natural Language Processing, the system extracts data from various file types. Users query the chatbot via a natural language interface, receiving direct answers and saving time. Tools like ChatGPT and Proxy curl improve profile evaluation efficiency and effectiveness for students, researchers, and professionals.

Keywords- large language models, GPT-3 summarization, proxy curl, implementation, and integration.

1. INTRODUCTION

In today's digital age, efficient access to information is essential, yet navigating the vast textual data on platforms like LinkedIn poses significant challenges. To address this, our research introduces the HR Insight Sidebar Extension, a novel solution harnessing advanced AI to streamline interaction with LinkedIn profiles. At the heart of our extension lies ChatGPT 3.5, an intelligent chatbot adept at extracting crucial details from user profiles, including skills and experience.

Utilizing sophisticated AI-driven algorithms, ChatGPT generates concise summaries, thereby facilitating swift and effective profile evaluation. Moreover, leveraging the Proxy Curl Companies API, our extension comprehensively gathers individual information, storing it locally for convenient access and ensuring a focused approach to data retrieval.

Through a user-friendly natural language interface, individuals can seamlessly query the chatbot, receiving prompt and accurate responses, thereby enhancing overall user experience and efficiency. By integrating these advanced technologies, our research endeavours to revolutionize the way users interact with LinkedIn profiles,

providing them with a more streamlined and effective means of accessing and understanding professional information.

II. LITERATURE REVIEW

exponential increase in internet data necessitate efficient information abstraction or summarization to accommodate busy schedules and manage data overload. Text summarization aids users in quickly understanding text by providing condensed versions that include only the most important details. The objective of automated text summarization is to reduce the length of documents while retaining essential information.

Automated summarization research can be divided into three main areas: generating summaries from one or multiple documents, preserving important information, and ensuring the summaries are concise. This field has been extensively studied, with various models proposed and evaluated using diverse datasets to generate effective summaries. For instance, A. Jain and D. systematically examine each sentence to determine its relevance to the central thesis. This meticulous process involves assessing thematic relevance, contextual significance, and logical progression, ensuring each sentence contributes to the main idea and enhances coherence and effectiveness.

B. A. y Acras discusses modern artificial intelligence systems, specifically Large Language Models (LLMs), which are designed to navigate and generate text coherently. This focus highlights a shift in AI research towards enhancing natural language processing capabilities, enabling machines to engage in more nuanced communication. By harnessing advanced algorithms and vast datasets, LLMs strive to emulate humanlike linguistic fluency, facilitating seamless human-machine interactions.

The need for machines to perform sophisticated language tasks—such as acquiring data, rendering, summarizing, and engaging in linguistic exchanges—drives the demand for LLMs. Recent advances in language models are attributed to deep learning methods, developments in neural architectures, increased processing power, and the availability of internet sourced training data, as explained by A. Chernyavskiy and D.

A. Wang and Y. focus on developing LLMs capable of approximating human-level performance on specific assessment benchmarks. This underscores recent breakthroughs in natural language processing, enabling the construction of increasingly sophisticated language models. By leveraging these advancements, Wang and Y. contribute to a paradigm shift in AI research, where LLMs serve as powerful tools for complex language

understanding tasks, revolutionizing applications from conversational agents to text generation systems.

D. Adiwardana envisions a significant transition in AI, driven by LLMs capable of rivalling human-level performance. This perspective heralds a new era where machines comprehend and generate natural language, potentially reshaping industries, communication, and societal interactions.

J. Devlin's research on Large Language Models (LLMs), particularly pre-trained language models (PLMs), demonstrates their exceptional generalization skills in tasks related to text recognition and generation. PLMs excel in self-supervised learning on large textual corpora, showing profound linguistic understanding and effectiveness in various NLP tasks.

Sumit Gupta's blog post explores using the Proxy curl API in conjunction with the requests library to extract LinkedIn data. LinkedIn, a crucial platform for professional networking, provides valuable data for recruitment, lead generation, and market research. By leveraging Proxy curl's API, the process of extracting data from LinkedIn profiles becomes efficient and reliable, overcoming potential limitations. The blog details the method of utilizing Python code to fetch information from LinkedIn via Proxy curl, highlighting the scraping capabilities of the API. This approach facilitates creating custom tools for extracting LinkedIn data, addressing the limitations of LinkedIn's own API.

M. E. Peters and M. Lewis highlight the transformative impact of pre-trained language models (PLMs) in natural language processing. PLMs exhibit exceptional generalization skills in text recognition and creation tasks, advancing AI-driven text processing across various domains, from automated content creation to personalized recommendation systems.

III. METHODOLOGY
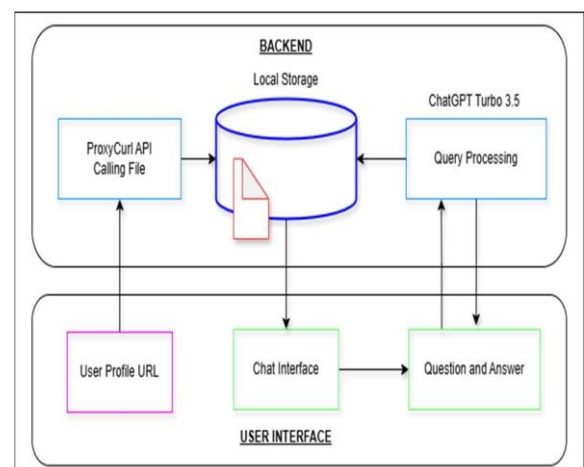
HR Insight Sidebar Extension Project

1.Environment Setup:

Established a robust development environment using a virtual setup for isolation and dependency management. Installed essential libraries (Flask for backend, Proxycurl API for LinkedIn data extraction, OpenAI API for AI responses). - Created a Flask project structure and managed sensitive information with python-dotenv, verifying the setup with a local flask server

2. Frontend Development:

Developed an intuitive interface using HTML, CSS, and JavaScript.

Designed an HTML form for LinkedIn profile URL submissions with asynchronous JavaScript handling. - Ensured a user-friendly experience with validation checks and modern web development practices.

3. Data Extraction and Storage:

Created a Flask backend endpoint for LinkedIn data extraction using the Proxy curl API.

Implemented secure data retrieval, error handling, and stored data locally in JSON format for efficient access. - Managed local storage to ensure data persistence, accessibility, and efficient querying techniques.

4. Chatbot Assistant:

Integrated OpenAI's GPT-4 API to develop a chatbot assistant for LinkedIn profile queries.

Defined chatbot parameters, handled API interactions securely, and ensured the assistant could generate accurate responses. - Designed a logical conversation structure for coherent and relevant user interactions.

5. Experimental Work:

Tested various AI models (Llama, Claude, Gemini) for parsing extracted data and responding to queries. Evaluated model performance, contributing valuable insights into their capabilities and informing the final model selection.

6. Additional Features:

Implemented a placeholder feature for direct profile queries from any webpage.

Developed a bookmarking feature for users to manage and interact with saved LinkedIn profiles.

MODULE DETAIL

1. Data Extraction Module:

Integrated Proxy curl API for LinkedIn data retrieval, handling authentication, authorization, and error management. - Parsed and formatted extracted data into a structured format for storage and display.

2. Data Storage Module:

Implemented local storage management using JavaScript to ensure data persistence and efficient retrieval.

Developed methods for querying stored data and managing data updates.

3. Chatbot Module:

Integrated OpenAI's GPT-4 API for processing and understanding user queries.

Implemented natural language processing for query parsing and context analysis.

Designed a conversational UI for coherent and relevant response generation.

4. User Interface Module:

Developed components to display LinkedIn profile data using HTML, CSS, and JavaScript.

Designed an interactive chatbot interface for seamless user interactions.

Implemented a placeholder feature for URL inputs from any site.

5. Backend Module:

Developed a Python Flask backend for managing API requests and data storage.

Handled Proxy curl and ChatGPT API calls, ensuring efficient and secure interactions.

Implemented data storage logic and synchronization between backend and fronted.

IV. RESULT

diverse selection of LinkedIn profiles, covering various industries and job roles, was meticulously chosen for analysis. Leveraging the HR Insight Sidebar Extension, pertinent data such as skills, experience, and educational background was extracted from these profiles. This extracted information underwent thorough scrutiny, comparing it against the original LinkedIn profiles to ensure precision and accuracy. This comprehensive validation process confirmed the reliability and effectiveness of the HR Insight Sidebar Extension in accurately capturing vital details from diverse LinkedIn profiles.
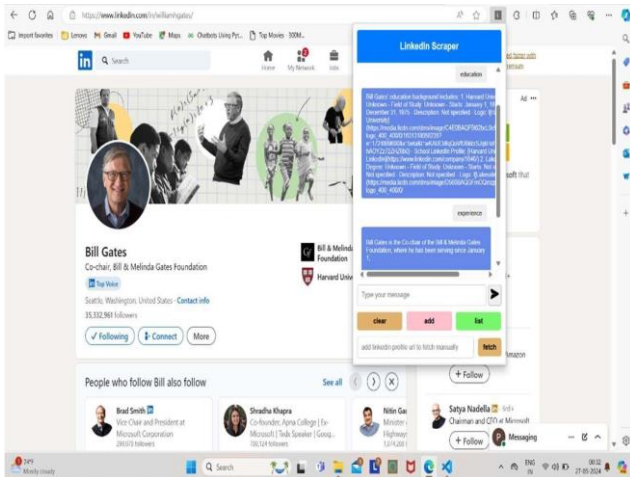
- A series of questions about LinkedIn profiles was posed to the chatbot.

- Responses were evaluated based on relevance, coherence, and factual accuracy.

- The accuracy rate of responses was measured against the extracted data from the corresponding LinkedIn profiles.

V. CONCLUSION

The HR Insight Sidebar Extension project introduces a seamless platform for LinkedIn profile data analysis, powered by ChatGPT. Methodically developed, it underwent rigorous testing of AI models like Llama, Claude, and Gemini, ensuring optimal performance. This extension streamlines talent sourcing and enhances recruiter engagement through its intuitive interface. Each development phase, from environment setup to AI integration, prioritized user experience and functionality. Successful execution of the project's objectives marks its effectiveness in addressing LinkedIn's data analysis challenges. Moving forward, potential enhancements aim to further refine user interaction and adaptability.