SYSTEMS AND METHODS FOR HYBRID ARTIFICIAL INTELLIGENCE ENHANCEMENT AND OPTIMIZATION

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This is a PCT patent application that claims benefit to U.S. provisional application serial number 63/539,102 filed on September 19, 2023 which is incorporated by reference in its entirety.

FIELD

[0002] The present disclosure generally relates to artificial intelligence (AI) including large language models (LLMs); and in particular to systems and methods for enhancing the capabilities of conversational AI systems to provide more accurate and reliable responses in enterprise settings across diverse industries.

BACKGROUND

[0003] Large language models such as ChatGPT can sometimes produce erroneous or hallucinated responses unsuitable for enterprise applications. These models generate answers probabilistically, providing human-like insights through immense statistical computation. However, the probability-based nature of these models leads to insufficient accuracy with respect to output. Furthermore, lacking mechanisms for preserving truth, these models can fabricate false information, and enhancing the models themselves often fails to resolve such hallucinations.

[0004] It is with these observations in mind, among others, that various aspects of the present disclosure were conceived and developed.

SUMMARY

[0004a] According to an aspect of the present invention, there is provided a method for enhancing responses from a large language model (LLM), including: (a) accessing at least one response to a query from a large language model; (b) parsing the at least one response into logic programming predicates defining a plurality of facts

and actions associated with the at least one response; (c) conducting an accuracy (correctness) validation operation for the at least one response in view of a knowledge base for logic programming including: (c)(i) verifying and maintaining facts of the plurality of facts in the at least one response shown to be true via the knowledge base, and (c)(ii) removing any other facts of the plurality of facts from the at least one response defining negations shown to be true in the knowledge base; (d) generating an output evaluating and returning a validated version of the at least one response based on the accuracy validation operation (e) parsing the at least one response into the logic programming predicates to construct input messages for an enterprise computer system; (f) integrating input messages as constructed with the existing enterprise computer systems, including informational systems and control systems, by formatting the input messages into application programming interface (API) calls for communication with said existing enterprise computer systems; and (g) distributing the validated version of the at least one response to said existing enterprise computer systems via APIs, enabling automated data queries and control actions based on generative artificial intelligence outputs.

[0005] The present disclosure provides a number of examples that describe systems and methods for enhancing the capabilities of conversational AI systems such as ChatGPT to provide more accurate and reliable responses in enterprise settings across diverse industries. In the context of the disclosed methods,