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AUGMENTED INSTANT MESSAGING COLLABORATION TOOL ASSISTANT

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ABSTRACT

Collaboration applications, such as messaging applications, are broadly used among enterprises to provide employees with the ability to communicate, share ideas, etc. While useful in many enterprise environments, such messaging applications can be a distraction and may also lead to an inefficient use of time by enterprise employs. In order to address such issues, an instant-messaging collaboration tool assistant system is proposed herein that can be powered by an Artificial Intelligence (AI)/Machine Learning (ML) system, in which the collaboration tool assistant system can provide a personalized collaborative environment for business users by expanding instant messaging collaboration tool capabilities. Through various techniques proposed herein, a personalized, context-based instant-message display can be provided for an enterprise user through which notification recommendations can be provided for the user based on various factors, such as user interest and/or business priorities.

DETAILED DESCRIPTION

Collaboration applications that feature video meetings, messaging, file sharing and whiteboarding have become very popular among enterprises/enterprise users. For example, many enterprises have adopted such applications for internal employee/user collaboration. In many organizations, messaging tools are displacing email for written communication between employees.

An average worker in a large organization can receive dozens – if not hundreds – of messages a day, either unicast or in group chats. A subset of these messages may be of high interest to the user, while many of them likely are not. For example, some messages

are likely relevant for the user to contribute to the business of the enterprise, while many other are messages are likely irrelevant.

When using messaging applications, people expect nearly immediate responses, leading users to constant checking the received messages to provide prompt response to colleagues. This is not only time consuming, but often a waste of time for the users; they interrupt work tasks to read messages which in many cases could have been ignored or postponed.

In order to address such issues, this submission proposes an augmented instant messaging collaboration tool assistant system that can help users optimize the use of messaging tools. During operation, the assistant can help a user easily identify relevant messages within a flood of received messages by providing classification of incoming messages according to user interest and business priorities. Actions that may interrupt user focus on work activities (e.g., trigger pop-up notifications) can be optimized by the assistant. Thus, the innovation proposed herein can optimize the interaction of business users with messaging tools.

In particular, the system may provide a personalized collaborative environment to business users by expanding instant-messaging collaboration tool capabilities. The system can incorporate customers' attention frame, customer role, click-through rates, manual inputs, user behavior, enterprise context information, customer interests and other data and can feed the data into a ML engine that can generate user interest and business relevance insights, and can prioritize message delivery and user notifications accordingly. Thus, user productivity can be optimized in accordance with this proposal.

Many instant messaging collaboration tools are customizable but not user-centric and personalized. The augmented instant messaging collaboration tool assistant system as proposed herein thus introduces a personalized environment to instant messaging collaboration tools that can provide for organizing messages and notifications – especially in business environments – using advanced personalized and context-based recommendations, powered by an AI/ML system. Accordingly, the augmented instant-messaging collaboration tool assistant system provides for improving instant messaging collaboration tool user experience and improving customer productivity.

During operation, the AI/ML system may receive various inputs, as described below and illustrated via the system architecture as shown in Figure 1.

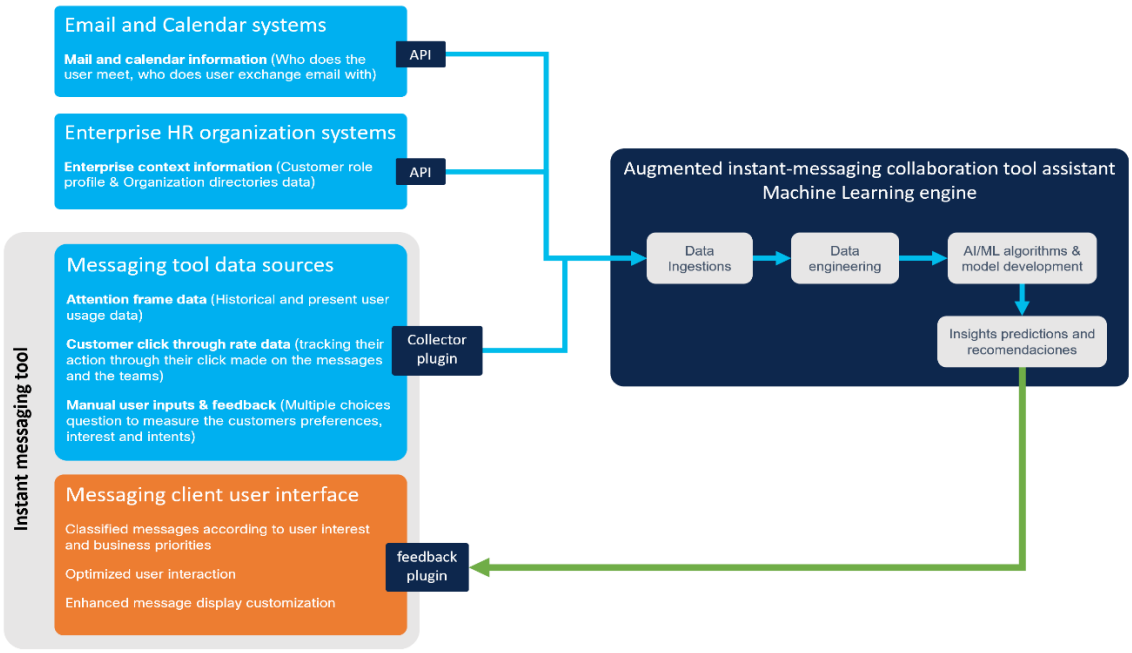

Figure 1: Augmented Instant Messaging Collaboration Tool Assistant System

As illustrated in Figure 1, various manual user inputs can be input to the system. For example, a user can be provided a mechanism to manually label received messages as high, medium, or low relevance. Every instant message displayed by the tool will include a 3-button widget for the users to label the messages as high/medium/low interest. A widget can also be provided to delete and/or label junk messages.

In addition to manual user inputs, user behavior and click through rate inputs can be obtained by the system. For example, the system can monitor the attention span of the user on every instant-message to determine how much time is spent on a message, how many times a chat space is opened, whether a chat space opened just after a message is receive, or after some time, and/or various any other relevant metrics/data/inputs. The system can also monitor messages for which a reply is provided along with various metrics such as how long after the message was received was the reply provided, whether the message was replied to while the user was performing another task (e.g., attending a video conference meeting, etc.). The system can also monitor whether unicast messages or chat group messages are read first (prioritized) by the user.

Various enterprise context information inputs can also be obtained by the system. For example, the system can be integrated with a human resources database or directory in order to gather information on users. Further, enterprise email inputs and/or calendar inputs can also be obtained by the system.

The system can correlate all of the inputs in order to produce instant message classifications according to user interest and business relevance, as shown below in Figure 2.

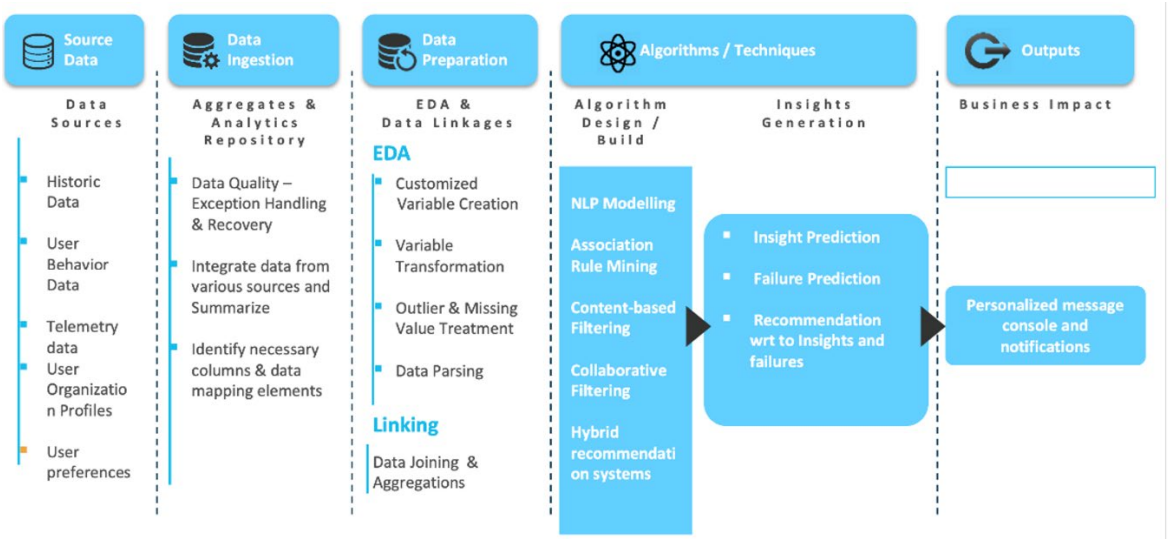

Figure 2: AI/ML System Functionality

The AI/ML system outputs can be used by an instant-messaging collaboration tool plugin as follows:

- Instant messages can be personalized according to user interest and relevance, such as bold text for highest relevance messages, normal text for medium relevance, and light text for lowest relevance. Optionally, some messages can be sent directly to a junk folder.
- Optionally, message pop-up alerts can be activated or suppressed according to message relevance classification.
- In some instances, message folders can be ordered according to relevance, rather than showing latest message at the top of the list.

- A dashboard or notices section can be provided where announcements of interest are displayed, instead of as a personal message in a folder.
- A dashboard setting panel can be provided to customize personalized message recommendations as per interest, which can be provided as feedback input to the AI/ML system to improve the recommendations.

Thus, the augmented instant messaging collaboration tool assistant system as proposed herein may provide enterprise users with the ability to train an AI/ML system by marking received messages as high, medium, or low relevance. The system can also monitor the attention span of the user on every instant message tool interaction (e.g., How much time spent on a message? How many times a chat space is opened? Is a chat space opened just after a message is receive, or after some time?). The system can also monitor which messages have been replied to by the user in order to gather additional metrics (e.g., How long after the message was received? Is it replied while the user is also attending a videoconference meeting?) The system can also monitor whether the user reads messages from unicast senders or chat groups first. Additionally, the system can use enterprise context information (e.g., human resources organization data) to personalize and prioritize instant-messaging collaboration tool messages.

Thereafter, upon obtaining such inputs, the system can facilitate the optimization of pop-up notification in an instant messaging collaboration tool based on user interest, business priorities, and, in some instances, privacy policies. Accordingly, the system as proposed herein can increase employee productivity by making messaging collaboration tools less disruptive to a user's attention.