End of Module Assignment
Title: Conversational Agents, at which point is this helpful?
By: Emmanuel Eshun-Davies, February 21, 2021

ICI PARIS XL is a perfumery and beauty retail and wholesale company established in the late 1960's in Belgium by Mr. and Mrs. Brenig whose love and passion for perfume and beauty products sparked the need for a company to share their passion with the world around them. The name ICI PARIS XL means 'This is Paris' and the XL in the name refers to the location of the company's first store, which was located in the French town of Ixelles (pronounced XL) in Brussels, Belgium. Mr. and Mrs. Brenig's vision to share their passion of perfumery and beauty products with everyone has in the following years since its commencement spread through the whole of Belgium and into other countries within the continent. The A.S. Watson Group, which is now the label under which ICI PARIS XL operates, is considered if not the only, then one of the largest Health & Beauty Retailer in the World with more than 15,000 stores only in 2002. The Store Currently has well over 200 physical stores and an increasing online presence. Interestingly, since the existence of the business in the 1960s, the company proves to keep up with the demands of technology by maintaining an active web shop, a mobile app and other in-store technologies. ICIS Paris XL won best Web shop Award since 2014 in Netherlands and has also been voted best web shop in Belgium since 2017. Even more worthy of mentioning, which is also the focus of this document, is their use of a live chat system with a non-human Agent to assist customers at first hand support when they visit an online shop.

Since the appearance of the worldwide pandemic SARS-CoV-2 virus (a.k.a COVID-19) in 2019, more companies have been forced out of their will to move their businesses online since the virus. Many countries have initiated countrywide lockdown where people are not able to move about with usual business activities. For the first time in the history of the world, departments have had to figure out how to continue being productive and meeting daily business demands from home.

This may seem sudden to the world but to most tech analysts, the expectation for the world to move more into online activities has been long overdue and this has rather been a blessing in disguise as companies and their clients are having to learn to appreciate doing everything online. This has introduced and scaled up many online technologies including online meetings, SaaS's, payment gateways/cashless transactions, and consequently as there is a rapid increase in online users, the need for AI technologies to assist in some of the human processes has become of great need. Such AI technologies include live chat systems with both human and robotic interactions.

The use of live chat systems, even before the pandemic was on the increase but has due to it, outgrown its expected smooth growth and a demand placed on their functionality having to be perfected. More companies are jumping to the option of using a live chat system where an agent sits at one end to provide live support to a client on the other end. This alternative of communication proves to be effective on several levels.

Live support applications allow the support agents to respond to mostly text chats from customers who are most likely to connect via the business website. A business can almost instantaneously engage visitors of their website both reactively and proactively, with the anticipation of both increased interactivity and trust with website visitors and increased sales.

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Live support applications would usually open a window, which connects the user to a support agent. Some applications enable users to be on a queue which ensures that each agent is not overwhelmed by support cases and deals with one to a few users at a time and then automatically proceeds to the next user or set of users when the present chat(s) is closed. Users can sometimes view their positions in the queue, get a copy of their chat conversation emailed to them or even follow up at a later time referencing to the previous conversation.

Some live support software applications use JavaScript, Java, or Flash Player and operate directly inside the browser. Unlike more classic software, visitors do not have to download anything. They would only need a browser that is able to connect to the business website except in cases where the business uses a mobile or desktop that requires downloading. The live support systems however are inbuilt to the app or website and do not require a standalone installation but may easily and rapidly communicate with the website's online agents.

There are other live support programs that not only give basic text chats, but also offer advanced communication capabilities, such as true voice over IP, remote view, application sharing, remote form filing, and website traffic monitoring.

Live video chat software is gradually taking a place in the stack of support options a client can have as even now, some clients are opting to support using online video tools such as skype and zoom.

With the advancements of AI, these live chat systems initially operated by humans are being replaced by Conversational Agents - A computer program designed to simulate conversation with human users, especially over the Internet. These Conversational Agents are trained to respond to specific phrases or words using natural human languages.

The Concept of a software application interacting with a human is achieved using Natural Language Processing methodologies. This involves processing natural spoken or textual language data by breaking it down into smaller parts that can be analyzed. Common methods include tokenization, part-of-speech tagging, lemmatization, and stemming. NLP focuses largely on converting text into structured data.

Part of the NLP processes are other methods like Natural Language Understanding (NLU), which focuses on getting the computer to understand human language as is presented. It looks at being able to know the intentions, needs and expectations of the human interactor/customer. In other words, it simulates the behavior and thinking patter of a human agent not only at the level of providing responses to queries or conversations but also being able to provide actual meaningful information.

Machine Learning and Deep learning methodologies are adopted here to assist the Conversational Agent in learning human languages and its interpretation. These processes can either be automated or have a level of manual processing where a human guides the computer by providing actions and inactions to each input. This then means for each user input, the computer is either automated to grow in intelligence or have to have a human who teaches it.

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The concept of Computers interacting with humans in the place of an actual human can be classified under two main types: Chatbots and Conversational Agents. Both types have one aim, to provide the human customer with useful information. But the definition of useful information varies on requirements or expectations of the Human.

These requirements and expectations assist us in making a distinction between Conversational Agents and Chatbots. Chatbots usually have a defined database where each input from a user is expected to provide a corresponding response. The input could be a series of button clicks, statement selections or even an actual textual input from the user. Careless of how the user inputs data, the job of a Chatbot is to identify words from the input and find the best and closest matches in its databases then provides them back to the user as response options. This then causes most interactions with a Chatbot a series of options at every input sent to the user.

On the other hand, a Conversational Agent goes beyond having a limited list of possible inputs and responses. It takes the process of NLP and NLU up a notch and makes a bigger attempt to understand the language, intention and meaning than just the words used. The computer is trained on customer intentions and needs. Once the software is able to understand inputs, it is then able to process and provide much more accurate responses through Natural Language Responses (NLR).

With these Communication innovations, businesses can provide quick response times due to the ability of their ability to communicate with several persons simultaneously and is as well cost-effective because the “human agents factor” can be done away with or reduced. These systems do not cost as much as human agents, can be duplicated and can handle 24/7 activity without the need to take breaks or holidays.

ICIS Paris XL has adopted to the usage of Chatbots. Contrary to the expectations of being able to provide their clients with real time, 24/7 quick support, clients feel rather frustrated when the responses they receive are unrelated to their actual needs. The Chatbots are designed to respond to specific phrases and if a user communicates using any other phrase other than what is known to the Chatbot, the response becomes unrelated, and the user tends to feel frustrated. The user of Chatbots intend to cut down on contact with humans so they would take you through a loop of basic attempts to assist you so every input could provide a list of unrelated options that may end you up with unneeded information.

The solution to this presented problem would be the Turin test which brings in the consideration that the experience from a Chatbot and an actual human should not be much apart and less frustrating to the user. To achieve this, ICIS Paris XL would have two options.

The first being maintaining the current Chatbot system in use but updating its database more often to have better responses for users. This also means the presence of a human agent who is dedicated to studying the patterns and queries of customers and feeding the database and setting better response options for users. For instance, we could replace the random responses generated by the Chatbot to a much more honest

response like “I do not understand your question, can you please clarify” or “please hold while I check with my colleague” at which point the experienced human agent can intervene by providing the Chatbot with a proper answer or taking over the conversation. All phrases the Chatbot could not respond to, and the intervention of the human agent could then be recorded and analyzed properly. At the end of which could be added to the knowledge database of the Chatbot. With this, we are sure our Chatbot’s accuracy will increase over time. This may not entirely solve the frustrations of the customers but will be well on a good road to providing them with useful information.

A second option would be to switch to a full Conversational Agent with the capabilities of Deep Learning and Machine Learning to provide customers with excellent support options. With its ability to self-learn, adapt, understand and provide meaningful and specific responses, this could be and is the future’s best alternative to providing support to customers.

A drawback to this solution could be the inability to instantaneously have a system with an experienced human agent ability but since it eventually gets there, the bigger picture might be a better consolation.

References

(Brookshear, 20190213, p. 574-607)
Brookshear, G., Brookshear, J. G., Brylow, D. 20190213, Computer Science: An Overview, eBook, Global Edition, 13th Edition, Pearson (Intl). available at: vbk://9781292263441

Vaez Shahrestani, Mohammad Reza. (2012). Davidson's no-priority thesis in defending the Turing Test. Procedia - Social and Behavioral Sciences. 32. 456–461. 10.1016/j.sbspro.2012.01.069.

Moon, Y., & Nass, C. (1996). How “real” are computer personalities? Psychological responses to personality types in human-computer interaction. Communication Research, 23(6), 651–674.

Moon, Y., & Nass, C. (1996). How “real” are computer personalities? Psychological responses to personality types in human-computer interaction. Communication Research, 23(6), 651–674.

Adam, M., Wessel, M. & Benlian, A. AI-based chatbots in customer service and their effects on user compliance. Electron Markets 31, 427–445 (2021). https://doi.org/10.1007/s12525-020-00414-7

“ICI PARIS XL.” A.S. Watson Group - a Member of CK Hutchison Holdings, www.aswatson.com/our-brands/luxury-perfumeries-cosmetics/ici-paris-xl/.

Van Pinxteren, M.M.E., Pluymaekers, M. and Lemmink, J.G.A.M. (2020), "Human-like communication in conversational agents: a literature review and research agenda", Journal of Service Management, Vol. 31 No. 2, pp. 203-225. https://doi.org/10.1108/JOSM-06-2019-0175

Packard, G., Moore, S.G. and McFerran, B. (2014), How Can ‘I’ Help ‘You’? The Impact of Personal Pronoun Use in Customer-Firm Agent Interactions, Marketing Science Institute Research Report, pp. 14-110.

Polani. (2017), “Motionless chatbots are taking over customer service – and it's bad news for consumers”, available at: https://theconversation.com/emotionless-chatbots-are-taking-over-customer-service-and-its-bad-news-for-consumers-82962 (accessed 2 October 2018).

Vishnoi, L. (2020). Conversational Agent: A More Assertive Form of Chatbots. [online] Medium. Available at: https://towardsdatascience.com/conversational-agent-a-more-assertive-form-of-chatbots-de6f1c8da8dd.

Techopedia (2011). Live Support. [online] Techopedia.com. Available at: https://www.techopedia.com/definition/1532/live-support#:~:text=Live%20support%20is%20a%20Web [Accessed 21 Feb. 2022].

John Stewart. (2020). What is natural-language understanding? [online]. Available at: https://www.algolia.com/blog/product/what-is-natural-language-understanding/?utm_source=google&utm_medium=cpc_nonbrand&utm_campaign=Developer_Google_EMEA_Search_NB_Blog_Dynamic&utm_content=blog&utm_term=&_bt=571020055136&_bk=&_bm=&_bn=g&_bg=131398377077&gclid=Cj0KCQiAjc2QBhDgARIsAMc3SqSpP6H9Zi3XlAp_kqL8VU4922U_wp4S0C_T_unBrZnX-NXRnJKnTeEaAj0bEALw_wcB.