Technology Review – NLP In Chatbots & Virtual Assistants For Use in Banking Industry

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INTRODUCTION

Customer service is the backbone of most businesses. The speed at which a business responds to customer requests and complaints can make or break them. Ironically, this is also one of the most under digitized area for most traditional Financial Services companies. Business areas such as contact centres are usually under tremendous cost pressure while also having to maintain high customer satisfaction and ensure low employee burnout. In recent years, this area has received a small boost through introduction of new tools such as chatbots and conversational voice assistants that can help boost productivity.

We will look at the role of Artificial Intelligence, and more specifically, Natural Language Processing (NLP) and two companies that are now in the business of developing these applications.

TECHNOLOGY

Natural language Processing (NLP) is core to the implementation of chatbots and voice assistants. The underlying technology has improved leaps and bounds over the few years which has led to a high adoption rate for these applications.

The key element in the business use case for chatbots tends to be to provide assistance to customers by answering their queries and providing more information about products and services. But at the same time, this needs to be done in a dialog format where the user asks some question and the chatbot responds to the question.

In order to accomplish the above, a chatbot needs to be able to understand the input from the user which would be in the form of a question. The chatbot then has to be able to process the input sentence and retrieve information from the database to be able to answer that question. In the scenario that the chatbot is not able to interpret the question correctly, it would need to request more information in the form of a follow-up question and then repeat the process. Typically, the architecture in this case could be an AI model that simply relies on a set of questions that the chatbot has access to and would be able to retrieve and present the answer from the database. The more advanced version of chatbots make use of machine learning and NLP based models that learn with every iteration and evolve.

NLP is one of the most important ways to build chatbots as it allows for the interaction between a computer and a human through a mechanism similar to human speech. Feed Forward Network (FFN) and Natural language Toolkit (NLTK) are both used for Pattern & speech recognition in the process. The training and feedback loop tends to be very important for chatbots to continuously evolve. Chatbots need to understand the user references and figure

out the underlying meaning of those words in a systematic way. They also need to isolate the key information based on the context and complete the conversation by supplying an answer based on the information retrieved.

Companies

Several companies have stepped in to fill in the need for conversational chatbots in the banking industry in recent years. The two prominent firms that come to mind through personal experience working in this field are : Liveperson and Kasisto.

Liveperson enables conversational AI through their chatbots that can be integrated into various products and customer journeys within the banking apps. They are able to also work with legacy banking systems to deploy these chatbots so as to ensure data security for these conversations with the customers.

Kasisto enables AI based conversational assistants for different banking segments and also promises to help businesses with cross-sell and upsell of products. There is also an element of handing control over to a real agent in case of a complex query that they handle well.

Conclusion

This is an interesting space for banking as an industry. As legacy platforms come under increasing challenge within the banking industry, the conversational AI based chatbots can offer a glimmer of hope to the industry to improve the service to customers – especially when they can work with legacy systems but also offer an improved experience to customers. These chatbots also assist the real agents at contact centres by taking over a big chunk of repetitive communication with customers. This also leaves the agents with time to handle higher value work which tends to be more interesting.

With the advent of NLP based chatbots, the technology has moved to an interesting point. NLP enables the improvement of chatbots by learning continuously through the conversations that they have with customers.

In addition to this, several companies such as Amazon now offer easier and custom ways for companies to build their own chatbots on their proprietary platforms. This should pave the way for chatbots to become ubiquitous and smarter in the years to come.

References

Conversational Interfaces for Information Search:
https://www.researchgate.net/publication/341765332_Conversational_Interfaces_for_Information_Search
Review of Chatbot design and trends:
https://www.researchgate.net/publication/337927323_REVIEW_OF_CHATBOT_DESIGN_AND_TRENDS
Systematic Review on Chatbot Techniques:
https://koreascience.kr/article/JAKO202210261259368.view?orgId=anpor&hide=breadcrumb,journalinfo
Liveperson: https://www.liveperson.com/
Kasisto: https://kasisto.com/