Proposed Topic: Ashesi Support ChatBot

**Annotated Bibliographies**

Michael D’silva, G., Thakare, S., More, S., & Kuriakose, J. (2017). Real World Smart Chatbot for Customer Care using a Software as a Service (SaaS) Architecture. *International conference on I-SMAC*, 658-664.

Taking full advantage of the emerging trend of online chatting and artificial intelligence (AI), the authors examined the role of chatbots in the customer service industry. The authors laid down an architectural pattern that utilizes machine learning models and cloud computing technologies to classify customers' inquiries as actionable or otherwise. With this approach, a company will typically require fewer than normal customer service representatives while reducing the inconvenience clients go through when complaining about a service provider.

The main strength of their proposal was due to the ability of the machine learning lamda module to automatically initiate conversation with the chatbot module when a customer's inquiry is labeled as actionable. This article is beneficial to my research work as it highlights the various technologies and components needed to create a scalable and reliable chatbot system.

Thomas, N. T. (2016). An e-business chatbot using AIML and LSA *- IEEE Conference Publication*. Retrieved from https://ieeexplore.ieee.org/document/7732476

This article explores the use of a chatbot system to combat problems that arise when using live chat, phone calls and any other methods that involve humans in offering customer service in the E-commerce field. Chatbot will allow handling of multiple queries concurrently. The paper suggested application of Artificial Intelligence and Latent Semantic Analysis in creating a chatbot to enable random responses to a single query and find the semantic similarity between words in vector representation form respectively. The author argues that the integration of these two technologies results in the production of an intelligent chatbot since the AIML will handle the general questions and the LSA will handle specific questions. Upon testing the model with various datasets, the chatbot was 97% accurate.

Both technical and non-technical readers can understand this article. The paper outlines the benefits of using chatbots. This is relevant to my research because unleashes the capabilities of chatbots to allow easy access of information in an concurrent way without human intervention.

Ranoliya, B. R., Raghunwanshi, N., & Singh, S. (2017). Chatbot for university related FAQs - *IEEE Conference Publication*. Retrieved from https://ieeexplore.ieee.org/document/8126057/

The authors draw on their research on creating a system that is efficient by designing a chatbot for University Related FAQs using Artificial Intelligence. Artificial Intelligence Mark-Up Language and Latent Semantic Analysis are defined as the efficient technologies to use for making efficient chatbots. Authors of this article identified the gap of combining Artificial Intelligence and Latent Semantic Analysis to make chatbots more powerful. The article did not elaborate on the benefits of incorporating LSA on a deeper level. However, the article offers a better understanding of artificial intelligence syntax. The authors did not elaborate more on the arguments that were pointed out by other writers referenced in his work. This article is related to my research because the proposed solution of a chatbot can be implemented in the Ashesi context.

Lee, D., Oh, K., & Choi, H. (2017). The chatbot feels you - a counseling service using emotional response generation - *IEEE Conference Publication*. Retrieved from https://ieeexplore.ieee.org/document/7881752/

This article, written by authors affiliated with a reputable institute, Korea Advanced Institute of Science and Technology, suggests the use of the novel chatbot offers personalized psychiatric counseling, identifies emotional state of a user and express emotional state when necessary. The author outlines the abilities of Artificial intelligence and the neural network concept in achieving this goal. The author argues that the responses given by the chatbot have a direct effect on the life of the user; therefore, the system must be sensitized with the human moral judgment. I agree with the authors argued that, this chatbot with its highest level of emotional intelligence will be able to replace the psychiatric counselor.

The article had strong statistical support of emotion recognition from other reputable authors. I found this article useful because it gave me a broader perspective of things I can incorporate in my solution such as personalizing the chats to make it feel more natural and application of neural networks can make my proposed solution smarter.

Argal, A., Gupta, S., Modi, A., Pandey, P., Shim, S., & Choo, C. (2018). Intelligent travel chatbot for predictive recommendation in echo platform - *IEEE Conference Publication*. Retrieved from https://ieeexplore.ieee.org/document/8301732

In this article, the authors attempt to improve human-machine interaction by replacing the human travel agent with a voice enable chatbot that is available 24/7 and can keep track of the previous chats it had with a user. The author argues that keeping track of the individual chat history and allowing a user to set their preferences and update them makes the chatbot equivalent or more than a human travel agent. This is because the chatbot recommendation will base on the user preference and history.

The author argued that all the information on travelling website can be nicely presented in a way that mimic the human conversation. The authors are aware of the limitations posed by using chatbot such as privacy because one would provide personal information. However, the author relied on very few sources from other authors. Utilizing the chatbot to make easy access to information in a domain makes this paper relevant to my research. This is a relevant article because of the software system development cycle that is fully implemented.