

IDEATION PHASE

LITERATURE SURVEY

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Maximum Marks	2 Marks

Jiweli Li, Will Monroe, Alan Ritter, Michel Galley, Jianfeng Gao and Dan Jurafsky have acknowledged that recent neural models of dialogue generation offer great promise for generating responses for conversational agents, but tend to be shortsighted, predicting utterances one at a time while ignoring their influence on future outcomes. In this paper, they show how to integrate and apply deep reinforcement learning to model future reward in chatbot dialogue. The model simulates dialogues between two virtual agents, using policy gradient methods to reward sequences that display three useful conversational properties: informativity (non-repetitive turns), coherence, and ease of answering (related to forward-looking function). They had also evaluated their model on diversity, length as well as with human judges, showing that the proposed algorithm generates more interactive responses and manages to foster a more sustained conversation in dialogue simulation. This work marks a first step towards learning a neural conversational model based on the long-term success of dialogues.[1]

Guendalina Caldarini, Sardar Jaf, Kenneth McGarry have acknowledged that Chatbots are intelligent conversational computer systems designed to mimic human conversation to enable automated online guidance and support. The increased benefits of chatbots led to their wide adoption by many industries in order to provide virtual assistance to customers. Chatbots utilise methods and algorithms from two Artificial Intelligence domains: Natural Language Processing and Machine Learning. They highlight the main challenges and limitations of current work and make recommendations for future research investigation.[2]

Jiyou Jia acknowledged that paper reports the findings of a study conducted on the application of an on-line human-computer dialog system with natural language (chatbot) on the teaching of foreign languages. A keywords-based human-computer dialog system makes it possible that the user could chat with the computer using a natural language, i.e. in English or in German to some extent. So an experiment has been made using this system online to work as a chat partner with the users learning the foreign languages. Dialogs between the users and the chatbot are collected. Findings indicate that the dialogs between the human and the computer are mostly very short because the user finds the responses from the computer are mostly repeated and irrelevant with the topics and context and the program does not understand the language at all. With analysis of the keywords or pattern-matching mechanism used in this chatbot it can be concluded that this kind of system can not work as a teaching assistant program in foreign language learning. [3]

Mikic, Burguillo, Liamas, Radriguez, Charlie have acknowledge the INES (INtelligent Educational System) is a functional prototype of an online learning platform, which combines three essential capabilities related to e-learning activities. These capabilities are those concerning to a LMS (Learning Management System), a LCMS (Learning Content Management

System), and an ITS (Intelligent Tutoring System). To carry out all this functionalities, our system, as a whole, comprises a set different tools and technologies, as follows: semantic managing users (administrators, teachers, students...) and contents tools, an intelligent chatterbot able to communicate with students in natural language, an intelligent agent based on BDI (Believes, Desires, Intentions) technology that acts as the brain of the system, an inference engine based on JESS (a rule engine for the Java platform) and ontologies (to modelate the user, his/her activities, and the learning contents) that contribute with the semantics of the system, etc. They focus on the CHARLIE (CHAtteR Learning Interface Entity) which is an AIML-based (Artificial Intelligence Markup Language) bot[4].

Shukla,T.,Singh,A.(2014).analysed the major factors that affect the employee perception towards the technology in banking sector. The study conducted was exploratory and analytical in nature. The factors that impact the employee perception towards technology was identified by carrying out an exploratory factor analysis. Adoption of technology and technology enabled solutions had made a structural change in the work environment for bank employees, who are required to reskill, upgrade and retrain in order to provide efficient and quality services. It pointed out that the people, processes and technology are the most supporting activities to create impressive value in the field of banking. The results of the study showed that employees are on the opinion that the technology has reduced the repetitive task and it also helps in addressing various issues such as security of networks, banking applications. The factor analysis was done on various factors such as on coordination, skills, management support, employee learning, IT investment, time management and that analysis showed that the employees have a positive correlation towards the technology[5]

Avasthi,G.P.,Sharma,M.(2000-01).discussed about the various digital products and innovative services that are using in banking sector today and also it examined the potential risks and challenges that the banking sector and its regulators, are facing from the technological developments. The article analysed not only the impact of technology on the retail banking industry but also the impact on the wholesale market of banking sector such as foreign exchange market, the commercial paper market, the bond market. It stated that the alternate delivery channels includes ATMs, Internet/Mobile banking, telephone banking etc.,The study pointed out that the widespread adoption of alternate delivery channels provides an opportunity to the private and foreign banks but it might be a threat for the public sector banks. Its also mentioning the potential risks and challenges to the different players in the banking industry. The risks to customers includes theft of cards, threat to privacy, fraud, break down of electronic system, use of transaction related information without customer consent and the risk to bankers includes fraud committed to security breaches, security risks and large scale system breakdowns. In addition o these risks to customer and bankers, there is systematic risk such as insolvency of issuer of e money and social risks such as money laundering and tax evasion and threat of cyber terrorism. The study concluded by stating some emerging roles for regulators in order to minimize the risks in future, which includes to provide a legal framework for enactment of laws for a speedy redressal, to establish a regulatory arrangements for reviewing the existing regulations in the light of upcoming developments, to implement an internal vigilance system to deal with the security risks, to act as a facilitator by developing an industry wide network of technology enabled delivery channels[6].

[1] Jiwei Li, Will Monroe, Alan Ritter, Michel Galley, Jianfeng Gao, Dan Jurafsky, “Deep Reinforcement Learning for Dialogue Generation”,(2016).
<https://doi.org/10.48550/arXiv.1606.01541>

- [2] Guendalina Caldarini, Sardar Jaf, Kenneth McGarry,” A Literature Survey of Recent Advances in Chatbots”, Information 2022, 13(1), 41,(2022).
<https://doi.org/10.48550/arXiv.2201.06657>
- [3] Jia, Jiyu, “CSIEC (Computer Simulator in Educational Communication): An Intelligent Web-Based Teaching System for Foreign Language Learning”, (2004).
- [4] Mikic, Fernando A. et al. “CHARLIE: An AIML-based chatterbot which works as an interface among INES and humans.” 2009 EAEEIE Annual Conference (2009): 1-6.
- [5] Shukla, Santripr Shukla Santripr and Dr. Ambalika Sinha. “Employee Turnover in banking sector : Empirical evidence 1.” (2013).
- [6] Sharma, Meera and Avasthi, G.P., “Information Technology in Banking: Challenges for Regulators” (January 1, 2001). Prajnan, Vol. XXIX, No. 4, 2000-2001, SSRN: <https://ssrn.com/abstract=2810870>

