PROJECT MY ALLY: TOWARDS A REALISTIC PERSONALIZED PERSUASIVE DIALOGUE SYSTEM FOR HUMAN INTERACTION ON DIVINING THE FUTURE AND ASSISTING BY USING ARTIFICIAL INTELLIGENCE

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***Abstract*—** This paper outlines the research paper and journals referenced for the final year project and aims to build the framework for the application. In particular, we presented the design of our research-based project [*] which focuses on developing a model which will be able to generate responses automatically to the questions asked using several various machine learning techniques. The proposed model could be used for basic assistant features and also providing a more probabilistic approach to the mystery of the future. For this purpose, many open source platforms are available. Artificial Intelligence Markup Language (AIML) is derived from Extensible Markup Language (XML) which is used to build up a conversational agent artificially.

***Index Terms*—** *Machine Learning, Proposed Model, Assistant, Probabilistic Approach, Artificial Intelligence, AIML*

Introduction

Large-scale conversational AI agents such as Alexa, Siri, and Google Assistant are getting more and more prevalent, opening up in new domains and taking up new tasks to help users across the globe. Across cultures and history, we discover individuals wanted to grasp their own future. People are continually making an attempt to seek out their own life to know how badly things can go and to decide how much work they need to put into it to change unusual things into satisfying outcomes in the future.
One key consideration in designing such systems is how they can be improved over time at that scale. Users interacting with these agent's experience frictions due to various reasons

My Ally is the AI-powered Virtual Friend which help you know your future and also provide clues about people's characters. It takes away the intimidation and awkwardness of interacting with real people. It will practice and face scenarios you are likely to encounter in the best way possible.

As a virtual friend, it currently aims to assist and performs the tasks of the user. In the long run, the objective is to explore the situations person can likely to encounter and increase the ability to predict the future more accurately.

[*] Project *My Ally – Know The Future*

RESEARCH PAPER & JOURNALS

[1] CONTEXT-CENTRIC SPEECH-BASED HUMAN–COMPUTER INTERACTION

Victor C. Hung

This paper describes research that addresses the problem of dialog management from a strong, context-centric approach. We further present a quantitative method of measuring the importance of contextual cues when dealing with speech-based human–computer interactions. It is generally accepted that using context in conjunction with a human input, such as spoken speech, enhances a machine's understanding of the user's intent as a means to pinpoint an adequate reaction. For this work, however, we present a context-centric approach in which the use of context is the primary basis for understanding and not merely an auxiliary process. We employ an embodied conversation agent that facilitates the seamless engagement of a speech-based information-deployment entity by its human end user. This dialog manager emphasizes the use of context to drive its mixed-initiative discourse model. A typical, modern automatic speech recognizer (ASR) was incorporated to handle the speech-to-text translations. As is the nature of these ASR systems, the recognition rate is consistently less than perfect, thus emphasizing the need for contextual assistance. The dialog system was encapsulated into a speech-based embodied conversation agent platform for prototyping and testing purposes. Experiments were performed to evaluate the robustness of its performance, namely through measures of naturalness and usefulness, with respect to the emphasized use of context. The contribution of this work is to provide empirical evidence of the importance of conversational context in speech-based human–computer interaction using a field-tested context-centric dialog manager.

[2] ROGERIAN AND EXPERIENTIAL THERAPIES WORK: A REVIEW OF THE RESEARCH ON PSYCHOTHERAPY, COUNSELLING AND RELATED PRACTICES

Cooper, M., Watson, J. C., & Hoeldampf, D, Ross-on-Wye
PCCS Books, 2010, 272 pp.

Reviewed by Peter Pearce, Head of Person Centred Department and Stephen Goss, Principal Lecturer DPsych (Professional Studies) programme, both of Metanoia Institute, Middlesex University, London, UK

The title being a bold assertion: 'Person-centered and experiential therapies work.' Eighteen authors, include all leading experts in their fields, review the available evidence to support this assertion across a range of sectors and person-centred and experiential (PCE) research tools and methods. They also highlight key areas of the evidence base that need to be developed to create more coherent and effective research for the future. This is an important

book, which succeeds in making complex topics accessible and clear, although inevitably a book that is more likely to be returned to many times as a resource to be tapped rather than one to be read cover to cover. Whilst a short review cannot fully honour the dedication and commitment of every contributor, each is certainly worthy of specific recognition for the considerable achievement that this book represents. All chapters introduce the topic and the evolution of PCE approaches in their particular field. Each chapter critically reviews the available evidence in detail and provides clear, brief conclusions before pointing to areas where further work is required.

[3] ASSESSING USER REACTIONS TO INTELLIGENT PERSONAL ASSISTANTS' HUMOROUS RESPONSES AND MEASURING HUMAN-BOT INTERACTION

Irene Lopatovska, Onur Varol

The paper reports on the study that developed a classification of humorous interactions with intelligent personal assistants (IPAs) and applied the classification to compare four IPAs, Apple Siri, Google Assistant, Amazon Alexa and Microsoft Cortana, on their humor performance.

The study relied on volunteer participants recruited through traditional academic channels (e.g. mailing lists) as well as Amazon Mechanical Turk (AMT). While AMT and non-AMT participants differed on some demographic characteristics, their overall ratings of IPA humor were not significantly different and were analyzed jointly using descriptive and inferential statistics.

The results revealed that Apple Siri and Google Assistant received higher average ratings on humorous IPA responses compared to Amazon Alexa and Microsoft Cortana. IPA responses to joke requests were judged as being funnier than IPA responses to questions related to the IPA's personality, rhetorical statements and other humor types. Consistent with previous studies on humor, our findings did not demonstrate strong relationships between select user demographics (age, gender and humor style) and their ratings of humorous IPA responses.

Measuring Human-Bot Interaction

As communication technologies evolve, a medium for human interactions also transforms into more rapid and information-heavy exchanges. To meet the cognitive load, humans rely on software to filter the vast content and automatize online interactions. Most software-assisted activities are beneficial for human–machine interactions; however, certain bad actors use automation to gain power and increase profit by deceiving others and gaming the systems. Especially in social networks, the prevalence of social bots has increased, and their impact has been observed in various scenarios. Research on detecting those automated agents using machine learning and network analysis has been developed, and researchers have been studying the interaction of humans and social bots online. The recent development of social bot detection methodologies and policy discussions for regulating online automation will lead to healthier online ecosystems.

[4] SURVEY ON PSYCHOTHERAPY HUMAN-BOTS

Bei Xu, Ziyuan Zhuang

This survey aims to investigate, analyze, and compare the state-of-the-art chatbots' feasibility and defects for psychotherapy. The survey points out a series of tasks necessary for future psychotherapy chatbots. We searched about 1200 related literature in public databases and selected five typical and state-of-the-art psychotherapy chatbots. Most of the state-of-the-art psychotherapy chatbots use retrieval-based methods to generate dialogs. Some psychotherapy chatbots incorporate psychological theories, such as cognitive behavior therapy, to solve unique psychological problems. The assessments show that chatbots can preliminarily recognize specific kinds of negative emotions and give relatively appropriate responses. The randomized controlled trials prove that psychotherapy chatbots are useful for some people with a mental health condition. Compared with real psychologists, psychotherapy chatbots have some advantages, such as accessibility without the limitation on time or location. However, some critical technical obstacles limit the usage of psychotherapy chatbots. The limitations require a series of necessary tasks for more effective and safer psychotherapy chatbots, such as collecting standard, valid, real, and rich corpora. In conclusion, current psychotherapy chatbots can hardly replace human psychologists in the short term, but they can improve human psychologists' effectiveness and efficiency as an auxiliary tool.

Conclusions and Project Future Developments

As conversational agents become more popular and grow into new scopes, it is critical for these systems to have self- learning mechanisms to fix the recurring issues continuously with minimal human intervention.

In this paper, we presented our platform Virtual Ally that provides our users with the most probabilistic answers about their future. For this, we use APIs and large datasets from horoscope websites. Also, to make our platform user-friendly we are using ChatterBot which is a Python library that makes it easy to generate automated responses to a user’s input.

One of the most powerful influences on fear is uncertainty. The less we know, the more threatened we feel, because lack of knowledge means we don’t know what we need to know to protect ourselves.

Our system achieves a high precision performance by assuring the user with a feeling of certainty over their future and reduces their anxiety and the fear of unknown. It does this in a friendly and conversational manner making the user more at ease.