Corobot: When the coronavirus begin to talk

AI Chatbot based on tweets about COVID-19

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ABSTRACT

The 2019 coronavirus disease (COVID-19) epidemic is a public health emergency of international concern and poses a challenge to psychological resilience. Research is needed to analyze and reduce adverse psychological impacts during the epidemic. CoroBot is a chatbot based on social network data about COVID-19 through GPT-2 training, and allow users to directly communicate with it. The aim of this study is to provide a new perspective for social awareness towards the anthropomorphization of the non-human life and seek the potential solution for psychological instruction during the pandemic. The importance of this research topic can also be observed in areas such as artificial life and affective computing.

KEYWORDS

Artificial intelligence, Natural language processing, affective computing, human computer interaction, Chatbot, Artificial life

CCS CONCEPTS

• Artificial intelligence → Natural language processing → Natural language generation;Human-centered computing → Human computer interaction (HCI) → Interaction techniques

1 MOTIVATION

Traditionally, the strong version of Artificial Intelligence is based on the assumption that cognitive functions are computational and thus independent of the specific material substrate, and in the same way, artificial life research seems to presume that one can separate the logical form of an organism from its material base[1]. The necessity of material base is controversial in previous research, so in this research, through the perspective of affective computing, to turn the biological harmful virus into the data-based computational life. CoroBot focused on communication rather than the material substrate of the actual virus, so through the text-based conversations, we can observe users' emotional concern about the current pandemic situation, and seek possible countermeasure.

2 PROPOSED APPROACH

2.1 Dataset

The basic dataset is a twitter dataset of 40+ million tweets related to COVID-19[2] The advantages of using tweets data is it including both news report, scientific research breakthrough, and people's life struggle around the COVID-19, so the training result will be a syncretic model including both scientific characteristics of the virus and the reflection of social issues. Due to the policy of twitter, the dataset only provides information of Tweets ID. We aim to hydrate over 100000 English tweets through Twarc[3].

2.2 Training and design

In the current demo, we used around 20000 tweets to train the basic model in GTP-2[4] in 2000 steps. This demo model will continuously generate new sentences based on the input sentence, then enable continuous conversations between the user and the CoroBot . Since the original data are mostly written in the third person in reports and the first person in common tweets, we use Rita.js[5] to fix the perspective of the sentence. For further development, we aim to clean the original training data to the first-person text from virus' view. So the chatbot will talk more fluently.
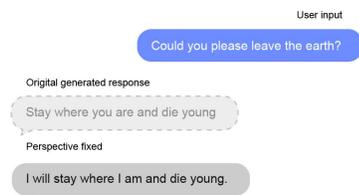

Figure 1: Example conversation of the demo

3 FUTURE PERSPECTIVE

Currently, the CoroBot is still under development. As future work, we intend to arrange user tests and analyze the feedback. Enabled by machine learning, this research will reflect people's attitudes from multiple ways: through the characteristic of the anthropomorphized Coronavirus, the conversations between the CoroBot and users, and the user's emotional status change before and after the chat. This will allow us to analyze the pandemic in both data-analytical and psychological way.

REFERENCES

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