

Title of Project:

(English)

Generative AI Driven Text-based Chatbot for Mental Health Screening

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(Chinese)

用於心理健康篩查的生成式AI驅動文字聊天機器人

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Abstract of Research Comprehensible to a Non-specialist

When someone suffers depression or anxiety, and develops more severe mental disorders, there are some symptoms. If such symptoms can be observed, they can be used to suggest suitable relief measures and treatments, in order to prevent more serious consequences. The most effective way to discover and ascertain an individual having the symptoms is of course through a trained professional, or a doctor. Since there can be a large number of people potentially suffering from distress and anxiety in different degrees, a more cost-effective way is to find the more likely cases by various screening questionnaire and tests. For example, Patient Health Questionnaire-9 (PHQ-9), and Generalized Anxiety Disorder 7-item Questionnaire (GAD-7) are examples of such questionnaires (tests) that we frequently used. They require the subject to answer a series of questions (9 and 7 respectively) with multiple-choice answers, either in paper or electronic format.

In this age of data science and AI, it is potentially feasible to link segments of conversation to the symptoms we want to identify, referred to as corpus-based analysis and prediction. Many studies have tried this approach to predict the risk of depression. While this approach can help detect risks sometimes, it does not gather information from many different relevant angles. Instead of trying to screen people based on non-systematic collection of conversational data, a text-based chatbot screening tool, referred to as CST from now on, is designed based on a given screening questionnaire/test and tries to collect answers to all questions in the given questionnaire. To make it more user-friendly, the CST does not necessarily ask the questions exactly the same way as in the questionnaire, and exactly in the same order. By asking for the same information as a chatting session, it helps subjects answer these questionnaires in a more relaxed manner. Additionally, if the user trusts the chatbot, more valuable information may be revealed during the conversation, such as the origin or details of the user's symptoms. This information cannot be obtained solely through assessment questionnaires. Thus, the CST can potentially be a better way to spot signs of depression, and anxiety. This project plans to build a prototype of Chinese language CST, based on PHQ-9 and GAD-7 respectively. We plan to get real users to try it out; and evaluate the practicality and usefulness of such an approach.

The CST we plan to build will be based on two popular screening questionnaires: PHQ-9, GAD-7 and achieve the following :

- An online, interactive, context-aware chatbot for screening on different assessments including PHQ-9 and GAD-7. It will be more accurate, and the extraction method is more natural.
- A reporting engine can itemize issues related to detected symptoms to obtain more useful information for reference.