IMMC 2019 Greater China Autumn Problem A

Nurturing Chatbot for Chatting about the History of Artificial Intelligence

Background

The chatbot LightBlue

Chatbot is the machine system that can communicate with human beings using natural language. The famous Turing Test which aimed to demonstrate the possibility of simulating human intelligence on computer in the born of artificial intelligence was designed by using Chatbot. Nowadays, chatbots for service, companion, and/or therapeutic purpose have shown the great market value in the era of artificial intelligence. The design and implementation of Chatbot cover almost all the sub-areas of artificial intelligence, from the basic machine learning and natural language processing to the more intelligent speech recognition and synthesis. Besides, different kinds of Chatbots are expected to possess the professional knowledge such as in psychology, pedagogy, technology and finance.

Problem and Context

There are many ways to implement Chatbot. For example, we can build Chatbot using machine learning methods, and train the Chatbot by the large dialogue training data. Different algorithms and different training data will make Chatbot's performance vary significantly. In tasks of this problem, you have an algorithm-unknown chatbot model and its training platform. You need to train the Chatbot through conversation, interaction and other training methods on the platform so as to observe and test the characteristics of the chatbot model. Your team is asked to design the training data and develop the training strategy to optimize the performance of the Chatbot.

Given the following resources

- An initial infant Chatbot model, *LightBlue* program and its training platform,
- A *User's Manual of LightBlue*,
- A text document briefing the history of artificial intelligence, and
- A vocabulary file,

  which can be downloaded from "News" column at www.istem.info

Tasks

- Through mathematical modeling, your team is expected to design the training data and strategy and using the platform to teach the chatbot model, *LightBlue*, about the short history of artificial intelligence;
- Enable *LightBlue* to make text chat with human beings about the history of artificial intelligence using the words in the vocabulary file and knowledge in the text document; and
- Your solution is expected to reflect *LightBlue*'s knowledge, language ability, communication skills, and the process of growth.

Submission

- Your solution paper should include a 1-page Summary Sheet. The body cannot exceed 20 pages for a maximum of 21 pages with the Summary Sheet inclusive. The appendices and references should appear at the end of the paper and do not count towards the 21 pages limit.
- Be sure to name the software file (i.e. the .pkl file as indicated in the *User Manual*) of your trained *LightBlue* model in your team's Control Number, and upload the trained model to the accessible link at Tencent Weiyun www.weiyun.com (If you use Google Drive or DropBox, please make sure to upload to Tencent Weiyun at the same time to facilitate the cross-boarder review). Please indicate the URL link/s clearly in your paper to facilitate the judges of Expert Panel to download and review it. Note that the ending time for training your *LightBlue* cannot exceed the deadline for the submission of your paper (with reference to the ending time coded in the uploaded model file)).