Findings of the First Workshop on Simulating Conversational Intelligence in Chat

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Abstract

The aim of this workshop is to bring together experts working on open-domain dialogue research. In this speedily advancing research area many challenges still exist, such as learning information from conversations, engaging in realistic and convincing simulation of human intelligence and reasoning. SCI-CHAT follows previous workshops on open domain dialogue but with a focus on the simulation of intelligent conversation as judged in a live human evaluation. Models aim to include the ability to follow a challenging topic over a multi-turn conversation, while positing, refuting and reasoning over arguments. The workshop included both a research track and shared task. The main goal of this paper is to provide an overview of the shared task and a link to an additional paper that will include an in depth analysis of the shared task results following presentation at the workshop.¹

1 Introduction

Despite substantial progress in conversational AI over the past number of years and heightened attention amongst the general public, effective evaluation of such systems remains a challenge. The ideal evaluation of dialogue models consists of measurement of performance via a large group of human users who partake in conversations with models in a live evaluation and report the successes or failures that take place. Past attempts at live human evaluation of dialogue systems have yet to be successful, as results have either relied fully on automatic metrics known to correlate poorly with human evaluation (if at all), or discarded human evaluation as they were unfortunately deemed unreliable (Dinan et al., 2019), and past challenges are likely due to the nature of the problem. There often exists an excessively large number of potential good responses (rendering reference-based evaluation as vastly under-rewarding systems), in addition to the challenges of evaluating the many facets of human conversation that enable simulation of intelligence. Open domain dialogue susequently provides what we consider to be one of the most challenging evaluation tasks in NLP. In this shared task, we revisit live human evaluation of models, and apply methods proven successful in distinct NLP tasks to the open domain dialogue.

2 Shared Task

The shared task has the focus of simulating any kind of intelligent conversation and participants were asked to submit an automated dialogue agent API with the aim of carrying out nuanced conversations over multiple dialogue turns, and the ability to posit, refute and reason over arguments. Participating systems were then interactively evaluated in a live human evaluation following the procedure described in (Ji et al., 2022).

¹https://arxiv.org/abs/2402.06420

2.1 Participating Models

To promote accessibility and encourage participation, participants were permitted to use any pretrained (or not) model and were provided a baseline model in the form of DialoGPT-Medium fine-tuned on Freakonomics² podcast transcripts which are publicly available and crawled easily with scripts provided in our Git repository.³ Participants are additionally permitted to use pre-trained models that are not freely accessible to the public, but to ensure fairness, participants are requested to inform organisers to identify systems in analysis of results.

Participants are permitted to use any data for system training, including the provided podcast dataset, but also other available datasets such as: Personachat, Switchboard, MultiWOZ, amongst others.

2.2 Evaluation Criteria

The evaluation process aims to provide valuable insights into the performance of the AI system in generating human-like conversation. Human assessment is used as the primary/official results of the competition, and this human evaluation is carried out using the Direct Assessment method adapted for Open-domain dialogue (Ji et al., 2022) described further below.

During human evaluation, human judges are given an assigned topic from a past podcast to discuss with models which is essentially an intelligence conversation topic, such as *New Technologies Always Scare Us. Is AI Any Different?*" after which they rate the performance of the model under a number of criteria using Direct Assessment.

2.3 Direct Assessment

Direct Assessment (DA) evaluation was first developed to assess the quality of machine translation output and overcomes past challenges and biases by asking evaluators to assess a single system on a continuous rating scale using Likert type statement (Graham et al., 2013). DA includes accurate quality control of crowd-sourcing and enables improvements over time to be measured (Graham et al., 2014), as well as a more accurate and cost-effective gold standard for quality estimation systems (Graham et al., 2016, 2017), and has been used to train MT metrics (Ma et al., 2017), as well rank systems

³https://github.com/hkmirza/

Besides machine translation, DA has also been used to evaluate and produce official results of shared tasks in natural language generation (Mille et al., 2018, 2019, 2020) and TRECVid video captioning competitions (Awad et al., 2023).

3 Results and Analysis

Results and analysis of the competition are provided at the following url: https://arxiv.org/ abs/2402.06420.

4 Conclusion

This paper describes an outline of the shared task currently underway to assess the ability of stateof-the-art dialogue models to simulate intelligence in conversation. In-depth results and analysis will be provided here on completion of the live human evaluation of models: https://arxiv.org/abs/ 2402.06420 All data acquired within the context of the shared task will be made public, providing an important resource for improving human evaluation and automatic metrics in this research area.

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