Submission

Submission ID 125081

Abstract

Program Stream

- Quantitative Methods

Type of Presentation

Paper within a symposium

Title

Designing AI-agents for generating synthetic data for psychological research

Summary

The first paper examined how to design AI-agents to generate synthetic data for psychological studies-a process also known as silicon sampling. In this study, we introduced a methodology for assigning quantifiable and psychometrically validated personalities to AI-Agents using the Big Five framework. We created AI-Agents using prompts designed based on the Big Five Inventory-2 (BFI-2) in different formats. We then validated their performance against human data via the Mini-Marker test and a series of risk-taking and moral vignettes. In the Mini-Marker test, we found that AI-agents created by new LLMs align more closely with human responses, although the finer pattern of results (e.g., factor loading patterns) was sometimes inconsistent. In the vignette tasks, we found that LLMs prompted with a scale format called the Expanded format most closely reproduce human personality-decision associations; we also found that AI-agents tended to produce inflated moral ratings due to safety alignment of the LLMs. Overall, our results show that AI-agents align with humans in correlations between input Big Five traits and output responses and may serve as useful tools for preliminary research. Nevertheless, discrepancies in finer response patterns indicate that AI-Agents cannot (yet) fully substitute for human participants in precision or high-stakes projects.

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