

Vortrag

Safeguarding scientific integrity

Fraudulent bot infiltration
in online-based studies

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Online studies (including experiments) are frequently used for data collection in social and behavioral research. Since such studies commonly face low response or participation rates, researchers increasingly consider social media platforms, such as Meta's Facebook and Instagram, for online study recruitment. However, data integrity may be threatened by bots (i.e., programs that autonomously interact with systems), as online studies have already been subject to bot infiltration in the past. In this talk, I present research from three articles dealing with bot prevention and detection measures. The first article investigates the completion behavior of simple rule-based bots and more sophisticated bots linked to Large Language Models (LLMs), such as OpenAI's GPT and Google's Gemini. The second article then examines so-called prompt injection techniques, such as "Jailbreaking" and "Prompt Leaking," for eliciting deviant behavior in LLM-linked bots. The final study attempts to predict LLM-generated text in open narrative questions to detect bot infiltration in online studies. Overall, the results indicate that bots – especially those linked to LLMs – show remarkable capabilities in (iteratively) completing online studies, thereby threatening the integrity of the data. At the same time, the results reveal that social and behavioral researchers are not helpless and that machine learning approaches and online study design features can provide protection.

