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CROSSVALI: A Method for Prompting AI for Data Analysis

Over the past few years, we have been interested in answering the question “Can ChatGPT Think Like a Statistician?” The answer is “Yes, but...”. Our data analysis prompting experience has prompted us (pun intended!) to create a framework for obtaining appropriate data analyses from artificial intelligence called CROSSVALI (Context, Refined Questions, Options, Specificity, Scrutiny, Verify & Validate, Ask Questions & Chain of Thought, Look Over, Interpret). When communicating in a collaborative data analysis team, the team shares the burden of communication. When collaborating with AI, the prompter takes on the majority of the burden of communication. The CROSS portion of the framework is input focused to help the prompter create a well-defined, well-communicated prompt with the necessary elements to translate the domain question into a statistical one. The VALI portion is human in the loop focused to ensure that we comply with ethical and responsible use of AI. In this talk we will cover the details of the framework in the context of quality applications for both typical LLMs and agents using skills (e.g. Claude Code and associated skills). At the end of the talk, attendees should be able to apply the framework and instruct teammates or students on the elements of the prompting framework in order to obtain more appropriate data analyses.

Special/ Invited session

Classification

Mainly application

Keywords

AI, Prompting, Data Analysis

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