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LLM-based physics analysis assistant at BESIII and exploration of future AI scientist

The data processing and analyzing is one of the main challenges at HEP experiments. To accelerate the physics analysis and drive new physics discovery, the rapidly developing Large Language Model (LLM) is the most promising approach, it have demonstrated astonishing capabilities in recognition and generation of text while most parts of physics analysis can be benefitted. In this talk we will discuss the construction of a dedicated intelligent agent, an AI assistant names Dr.Sai at BESIII based on LLM, the potential usage to boost hadron spectroscopy study, and the future plan towards a AI scientist.

Significance

This is the first study of building AI assistant using LLM which can automatically complete several tasks in physics analysis at BESIII experiment. In addition to chatbot, the LLM could be used to automate the physics analysis workflow and it could change the way people do research dramatically. We have already get some results and would like to present and discuss how LLM can help HEP analysis.

References

Experiment context, if any

BESIII

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