

Building an Intelligent Accelerator Operations Assistant using Advanced Prompt Engineering Techniques and a High Level Control System Toolkit

In this talk a work-in-progress implementation of an accelerator operations assistant is presented. The assistant is based on the open Mixtral:8x7b-instruct LLM and can tap into the high-level control system toolkit 'doocs_generic_experiment', written for and used at the dedicated R&D accelerator ARES at DESY. Furthermore, it has access to the electronic logbook, as well as machine-specific documentation. In order to achieve this, advanced prompt engineering techniques, such as chain of thought (CoT), ReAct prompting, and retrieval augmented generation (RAG) are leveraged.

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