Towards Natural Language-driven Autonomous Particle Accelerator Tuning
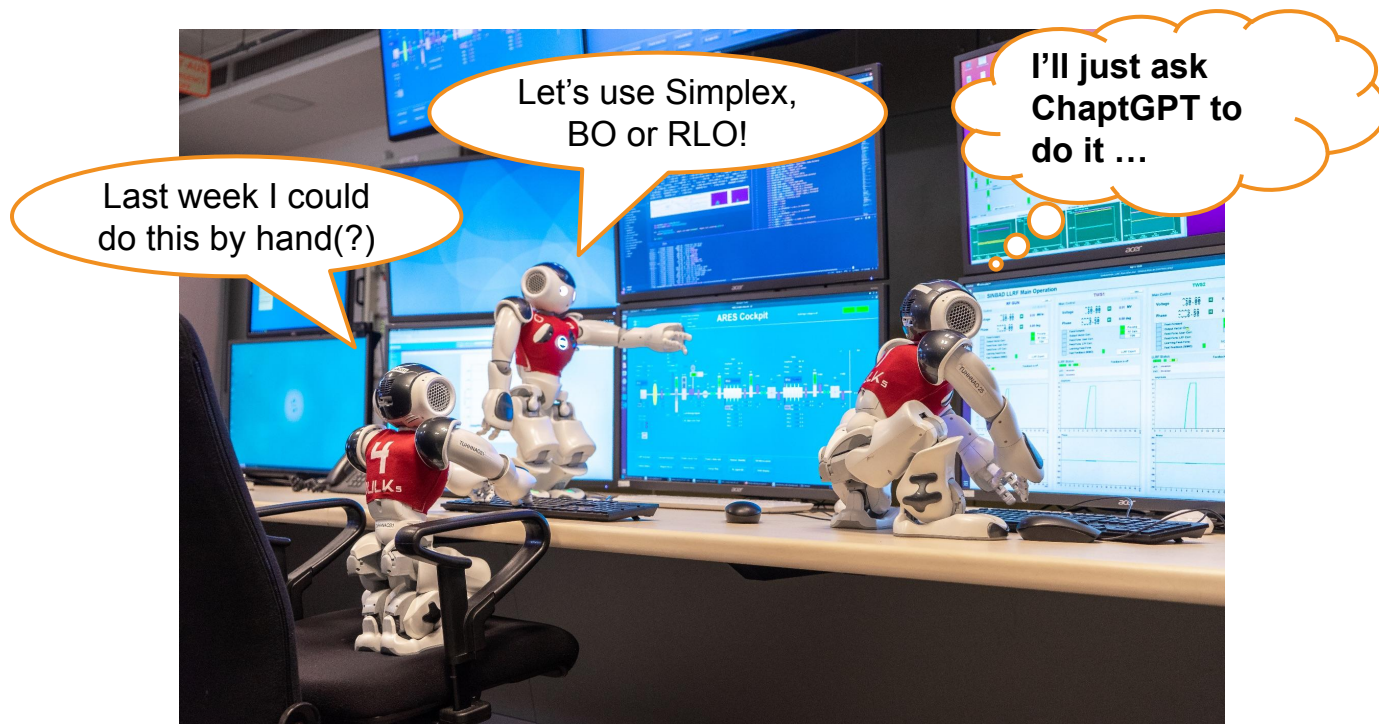
4th ICFA Machine Learning Workshop

Jan Kaiser, Annika Eichler and Anne Lauscher
Gyeongju, 7 March 2024

HELMHOLTZ RESEARCH FOR GRAND CHALLENGES

Universität Hamburg
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DESY.

An Oversimplified History of Autonomous Accelerator Tuning

From human intelligence over optimisation to artificial intelligence

DESY. Towards Natural Language-driven Autonomous Particle Accelerator Tuning | 4th ICFA Machine Learning Workshop | Jan Kaiser

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Let's Ask ChatGPT to Do It …

Questions

large language models (LLMs)

Can ~~ChatGPT~~ tune a particle accelerator?
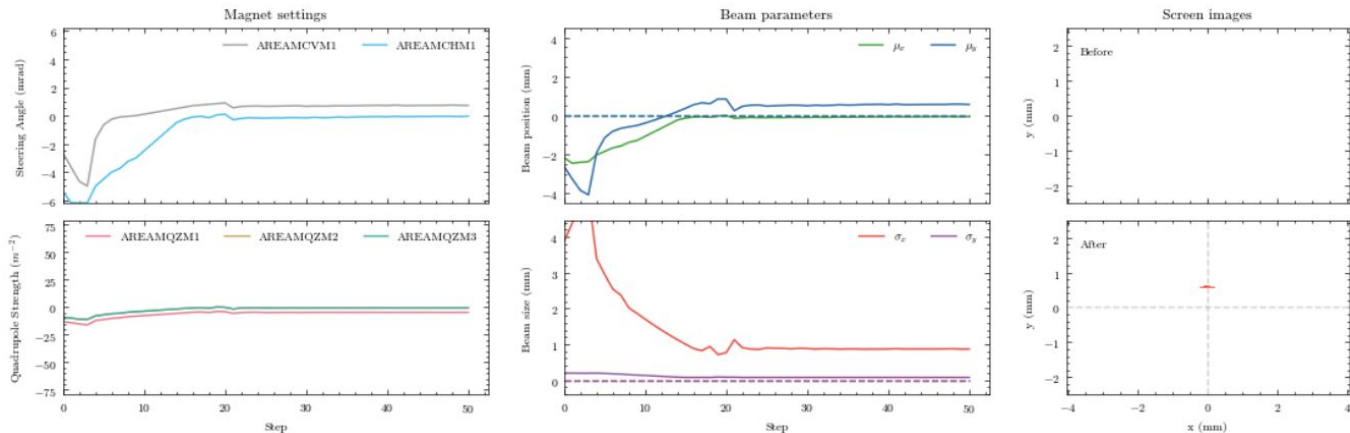
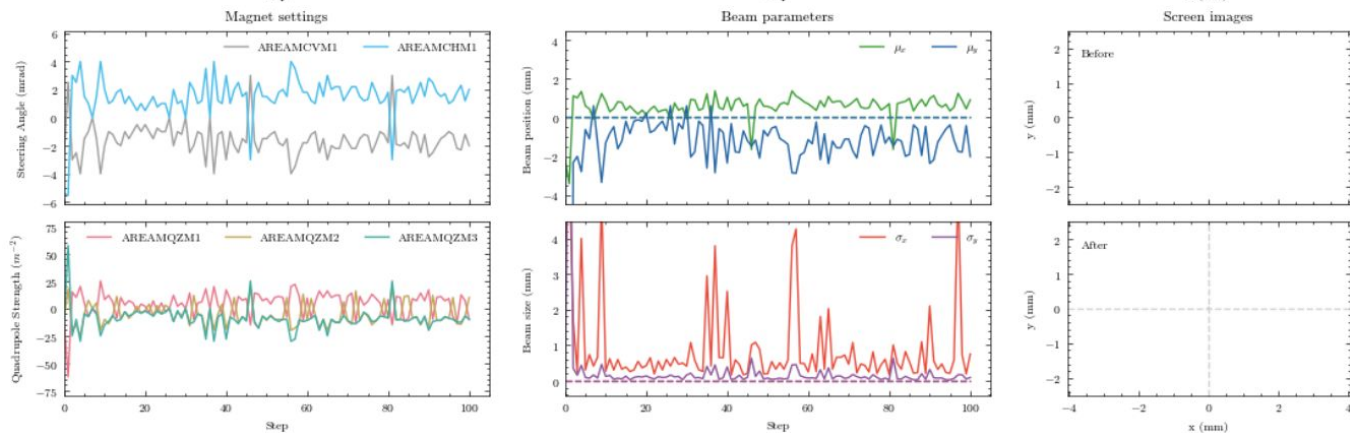How would that be implemented?

Teaser

Yes and no …

Yes … to some extent
GPT 4 (optimisation prompt)

But also no
GPT 3.5 Turbo (tuning prompt)

Contact

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