

Integrating automation and optimisation into the CERN control system

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The need for greater flexibility, faster turnaround times, reduced energy consumption, reducing operational cost at maximum physics output and the sheer size of potential future accelerators such as the FCC ask for new particle accelerator operational models with automation at the center. AI/ML is already playing a significant role in the accelerator domain with numerous applications in design, diagnostics and control. This contribution will introduce the building blocks for automating exploitation for the CERN accelerator fleet. These building blocks include classical automation concepts as have been introduced mainly with the LHC and since recently also frameworks that allow full automation of various processes with AI/ML techniques. CERN's vision for the coming years will also be shortly summarised and finally a few operational examples for automation and optimisation in the control room will be shown.

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