

Machine Learning for Particle Accelerator Control Systems

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Particle accelerators are host to myriad nonlinear and complex physical phenomena. They often involve a multitude of interacting systems, are subject to tight performance demands, and should be able to run for extended periods of time with minimal interruptions. Machine learning constitutes a versatile set of techniques that are particularly well-suited to modeling, control, and diagnostic analysis of complex, nonlinear, and time-varying systems, as well as systems with large parameter spaces. Consequently, the use of adaptive, machine learning-based modeling and control techniques could be of significant benefit to particle accelerators. For the same reasons, particle accelerators are also extremely useful test-beds for these techniques. This talk briefly discusses some promising avenues for incorporating machine learning into particle accelerator control systems and shows some initial results from our work at Fermilab.

Is this an abstract for a New Perspectives presentation?

Yes

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NO

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