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Development of beam transport system optimization method using VAE and Bayesian optimization

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In recent years, Bayesian optimization has been attracting attention as a tuning method for accelerators. However, the number of iterations required increases as the number of parameters increases. Therefore, there is a limit to the number of parameters that can be optimized in a realistic amount of time. In this study, we proposed a new method that combines the dimensionality reduction method with VAE. This method increases the number of parameters that can be handled at one time and enables the tuning of long beam transport systems in a short time. In this presentation, we will report on the preparation status of the demonstration experiment.

Primary Keyword

AI-based controls

Secondary Keyword

bayesian optimization

Tertiary Keyword

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