



Contribution ID: 62

Type: **Contributed Talk**

## Considerations on Reinforcement Learning feasibility for the automatic setup of controlled longitudinal emittance blow-up in the CERN SPS

*Wednesday, February 7, 2024 11:30 AM (30 minutes)*

Despite the spreading of Reinforcement Learning (RL) applications for optimizing the performance of particle accelerators, this approach is not always the best choice. Indeed, not all problems are suitable to be solved via RL. Before diving into such techniques, a good knowledge of the problem, the available resources, and the existing solutions is recommended. An example of the complexities related to RL solutions is the automatic setup of controlled longitudinal emittance blow-up in the CERN SPS. Several criticalities, such as the data availability and the increasing problem dimensions, limited the development of an operational tool based on RL. Therefore, the released software relies on generic optimizers only, even if promising results with Bayesian optimization were achieved.

### Possible contributed talk

Yes

### Are you a student?

No

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**Session Classification:** Contributed Talks