

2nd collaboration workshop on Reinforcement Learning for Autonomous Accelerators (RL4AA'24)



Contribution ID: 50

Type: **Poster**

The RL4AA'23 kick-off workshop at KIT

Reinforcement Learning (RL) is a unique learning paradigm that is particularly well-suited to tackle complex control tasks, can deal with delayed consequences, and learns from experience without an explicit model of the dynamics of the problem. These properties make RL methods extremely promising for applications in particle accelerators, where the dynamically evolving conditions of both the particle beam and the accelerator systems must be constantly considered.

While the time to work on RL is now particularly favourable thanks to the availability of high-level programming libraries and resources, its implementation in particle accelerators is not trivial and requires further consideration.

In this context, the Reinforcement Learning for Autonomous Accelerators (RL4AA) international collaboration was established to consolidate existing knowledge, share experiences and ideas, and collaborate on accelerator-specific solutions that leverage recent advances in RL.

The collaboration was launched in February 2023 during the RL4AA'23 workshop at the Karlsruhe Institute of Technology. This workshop included introductory lectures to RL, a hands-on tutorial on how to apply RL to an accelerator problem, an overview talk on RL in the field of accelerators, and advanced discussions in dedicated working groups on modern RL challenges.

Possible contributed talk

No

Are you a student?

No

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Session Classification: Posters