



Reinforcement Learning for  
Autonomous Accelerators



# RL4AA'25

## RL Challenge

# Well done!

Reinforcement Learning for  
Autonomous Accelerators



We saw a lot of collaboration 😊

- People discovering RL for the first time
- People trying their own non-RL solution
- Reinforcement learners adapting to the problem
- Some participants coding while walking during the lab tour

**We hope to have  
convinced you about the  
power of RL!**



# Before we go any further

The code and materials provided here are the result of significant effort, including state-of-the-art research. We share these resources in **good faith, aiming to contribute to the community and advance knowledge in our field**. If you use or build upon any part of this tutorial, whether in research, software, or educational materials, **proper citation is required!**

```
@software{kaiser2025rl4aa25,  
  title      = {{RL4AA'25 ARES Challenge}},  
  author     = {Kaiser, Jan and Xu, Chenran and Hespe, Christian and {Contreras Campana},  
  year      = 2025,  
  month     = 04,  
  publisher  = {Zenodo},  
  doi       = {10.5281/zenodo.15120236},  
  url       = {https://zenodo.org/doi/10.5281/zenodo.15120236},  
  version    = {v1.0.1}  
}
```



[Link to Zenodo entry](#)

Link to paper: [Sci.Rep. 14 \(2024\) 1, 15733](#)

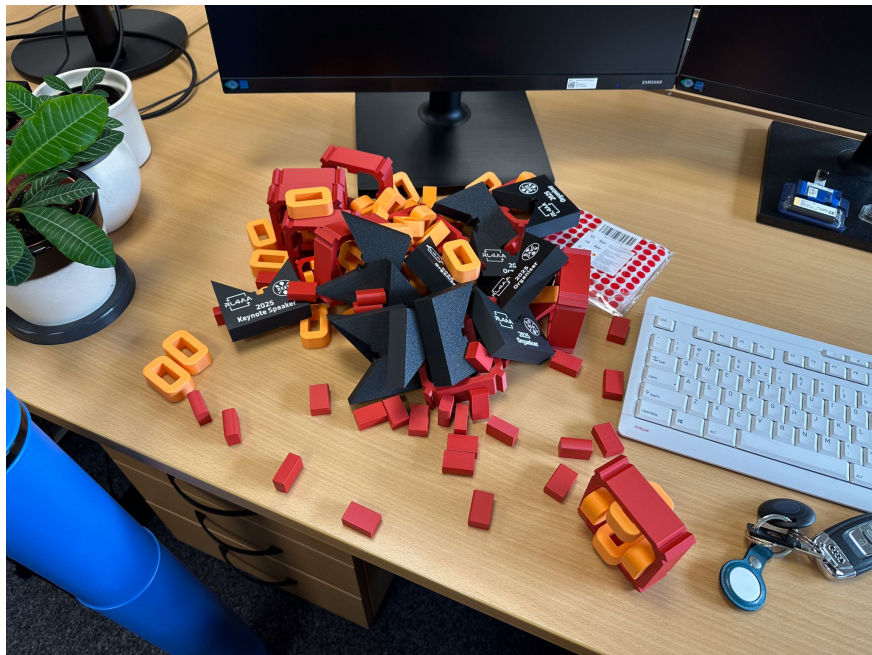


*By using this repository, you acknowledge and respect the effort behind it. We appreciate your support in maintaining academic integrity and fostering an open, collaborative environment.*



# First the prize...

Reinforcement Learning for  
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<https://rl4aa.github.io/>

# And now...the results!

## Reinforcement Learning for Autonomous Accelerators



1	The 8-ties		0.02739
2	Reinforced Confusion		0.04908
3	Beam Kickers		0.06213
4	All good things come in 3s		0.07769
5	codingS3b		0.09926
6	Tetro Dotoxintoxin		0.10001
7	SLAM		0.13099
8	amylizzle		0.14991
9	Ryan Roussel		0.18012
	Do Nothing		0.81225

	Do Nothing		0.81225
10	bustinduy		0.93918
11	Juanlu		1.02157
12	TheJasonStJohn		1.23898
13	Christian		1.84659
	Random Search		2.34329

# Come up and explain your solution

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