Università Degli Studi Di Salerno

DIPARTIMENTO DI INGEGNERIA DELL'INFORMAZIONE ED ELETTRICA E MATEMATICA APPLICATA

Machine Learning – Project Work

Tennis Table Tournament

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Disastrous Start

- **Reinforcement Learning:** everything in input to compute all the actions (2 hidden layers with 400 neurons)

× Learn nothing after a night of training

× Perhaps a much larger architecture is needed, which would require more time for learning

✅ Divide the tasks, reducing the inputs given to the network and the outputs it needs to compute

✅ If there is an algorithmic way to do something perfectly, do it

Disastrous Continuum

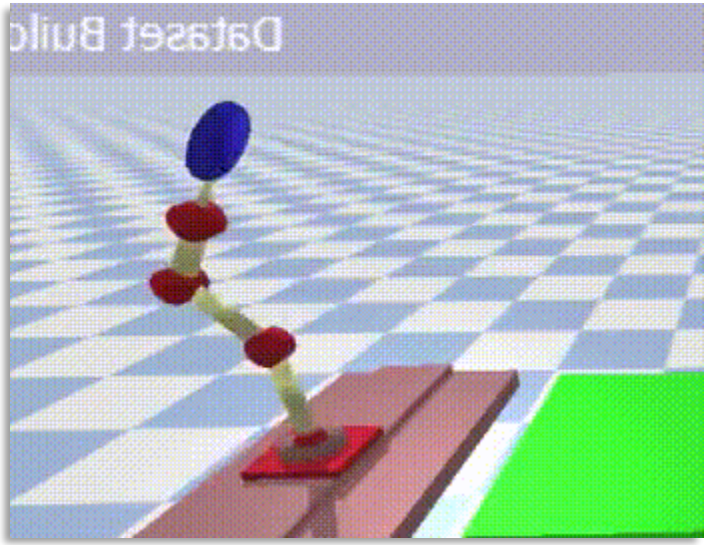
- **Reinforcement Learning for the Arm:** with algorithmic cart and locked paddle with the 3 pitch joints, ball and paddle position in input, to compute the 3 pitch joints values (2 hidden layers with 400 neurons)

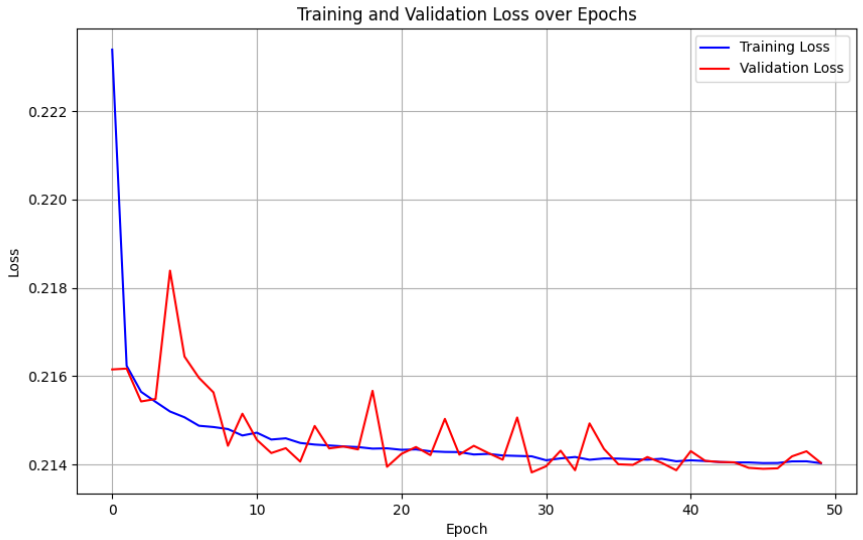
× Locked in a strange pose in a corner after a night of training

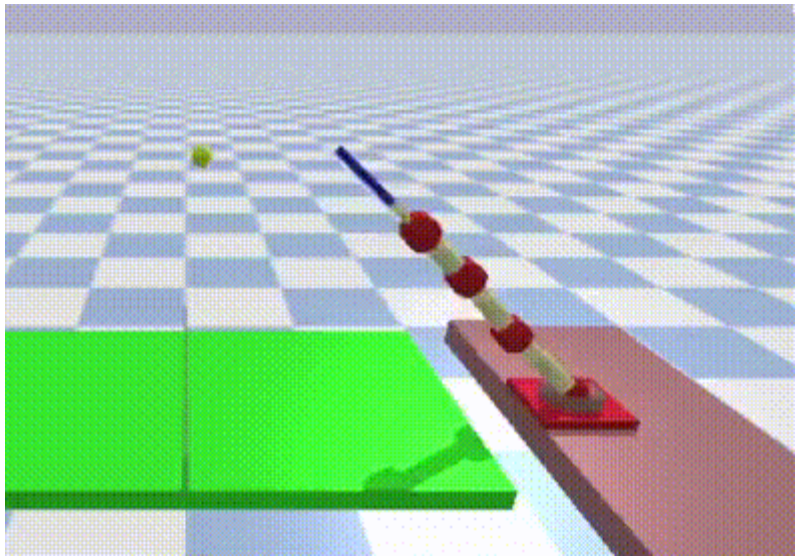
× Positive reward for staying still

✅ If you can, do Supervised Learning

Supervised: Arm

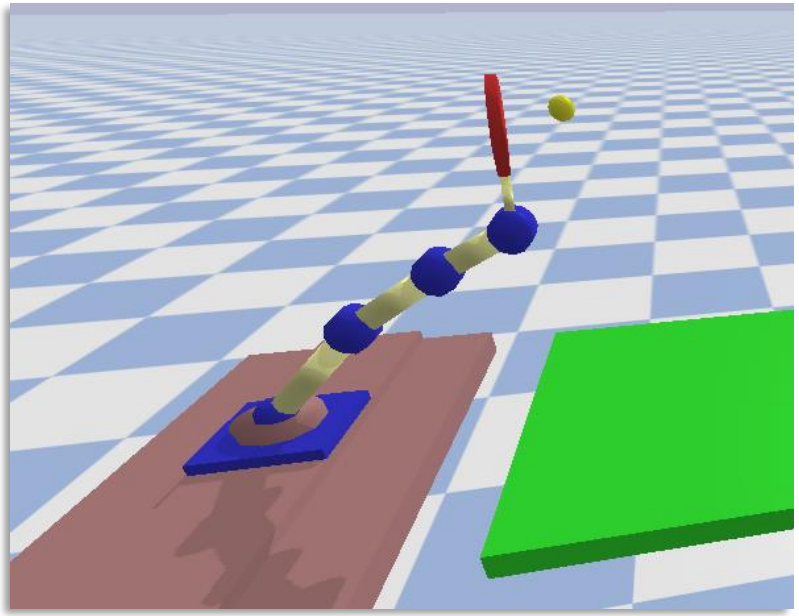


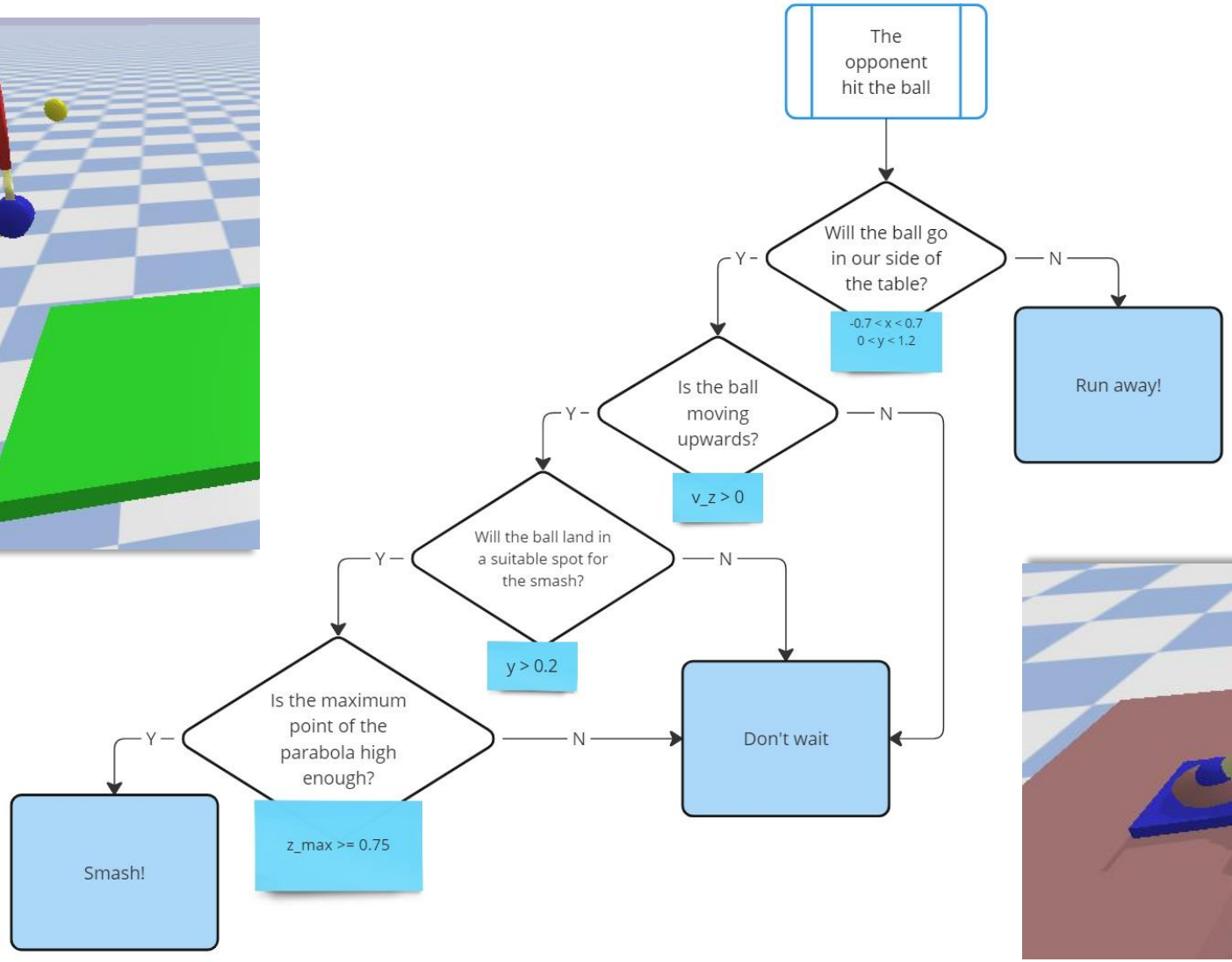


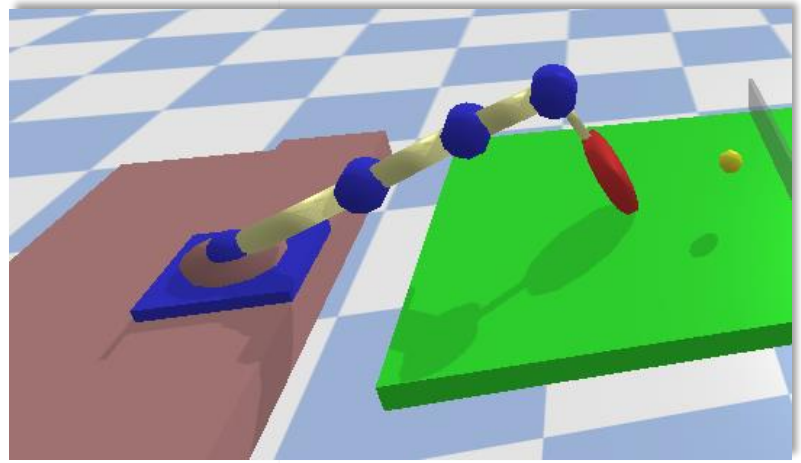


joint0	joint3	joint5	joint7	paddle_y	paddle_z
0.07772414	0.51675409	-0.33092451	0.77683323	-0.17230059	1.13443374

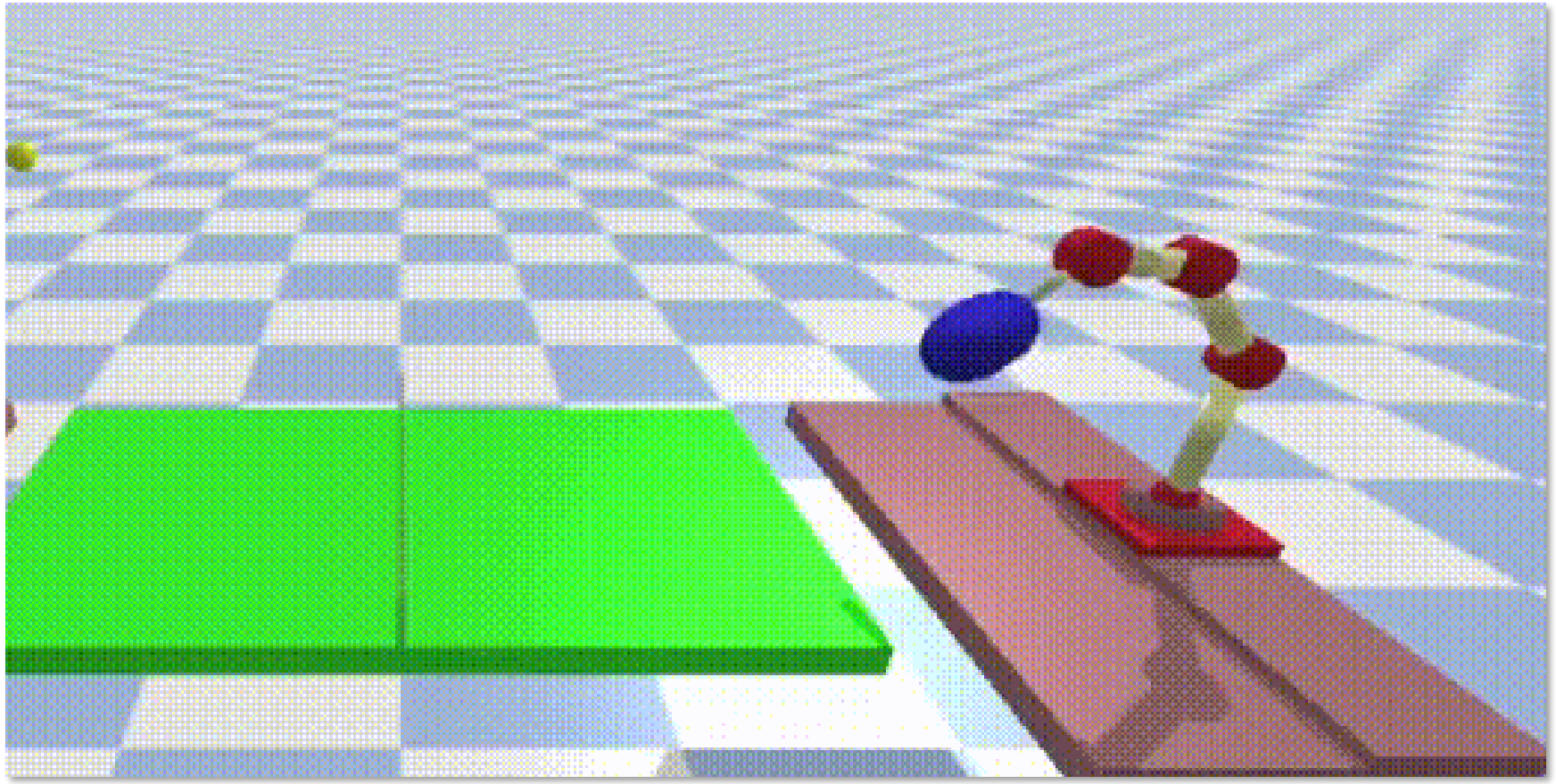
Reinforcement: Paddles



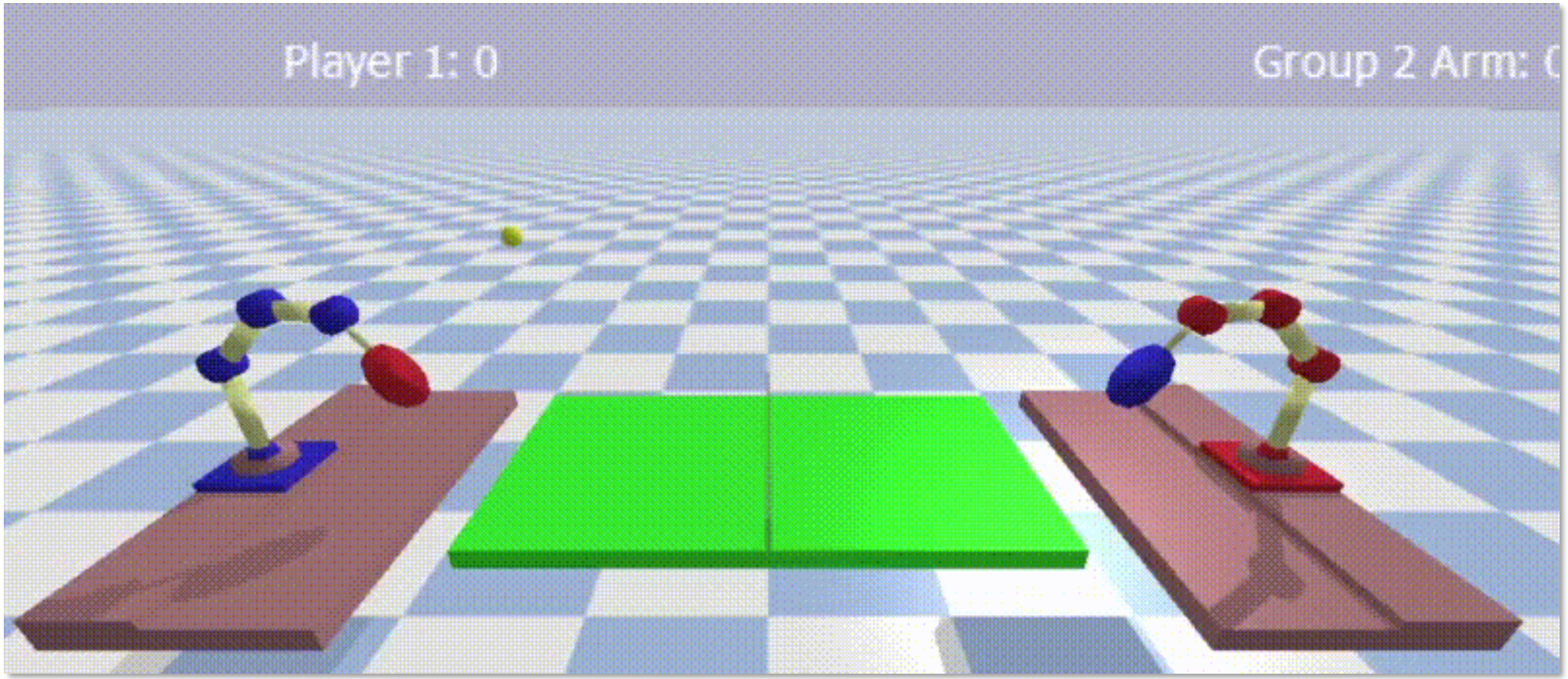




Reinforcement: Paddles



Final Consideration



Thank you for your attention!