Joint meeting

Andrea Pierré

March 4th, 2024

Brown University

Outline

1. Online Deep RL training
2. Generalization experiment
3. Discussion

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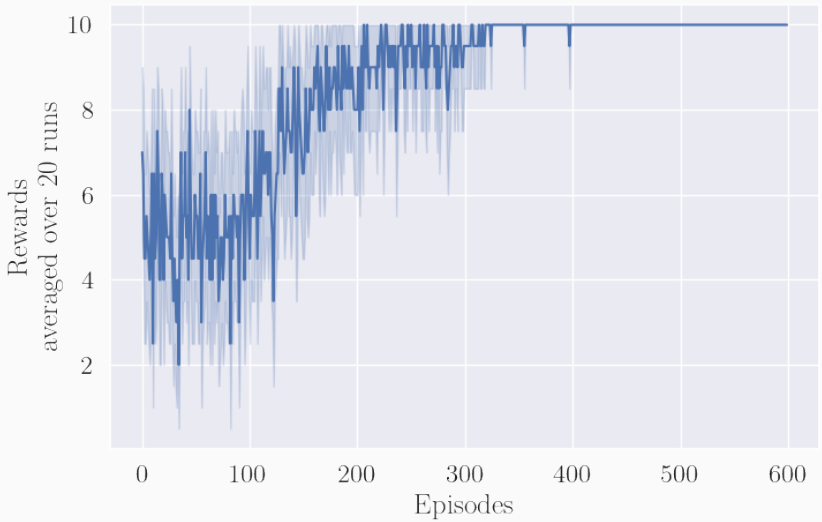
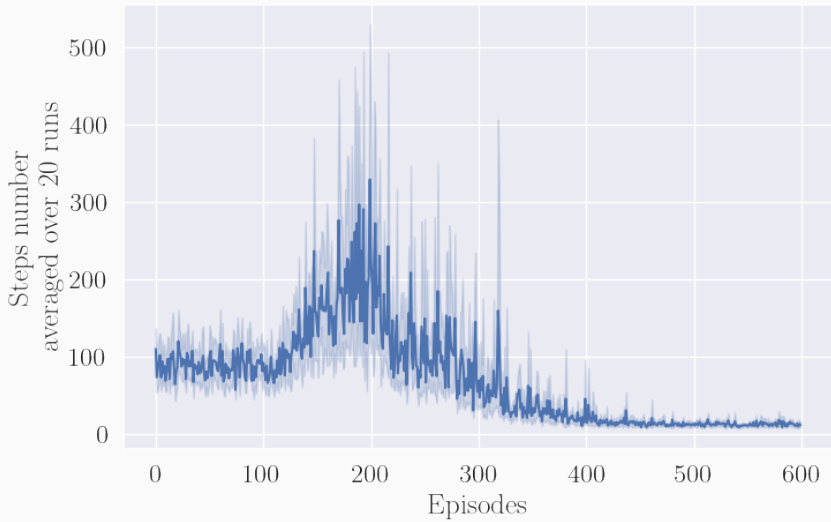
Rewards & steps





Why is it converging now?

- Lights cues in the state?
- Start training once replay buffer is full (5000 transitions) instead of when there are enough transitions for a batch (32 transitions)
- Soft update of the networks weights (instead of sharp transition)
- Huber loss instead of mean squared error $\rightarrow$ should be less sensible to outliers
- Remove ReLU on output layer!

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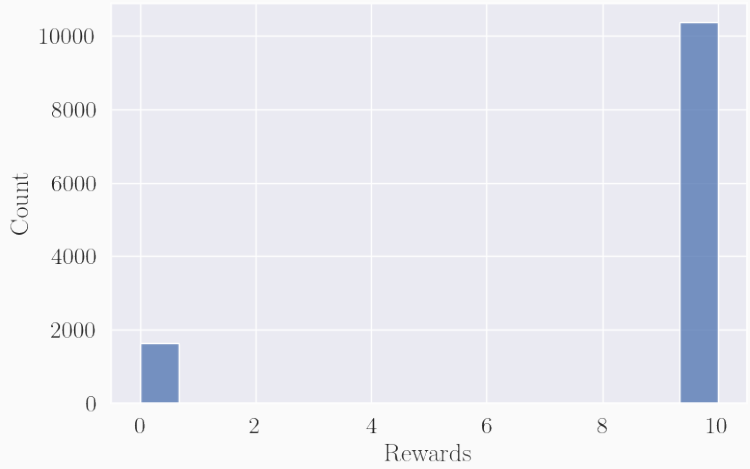
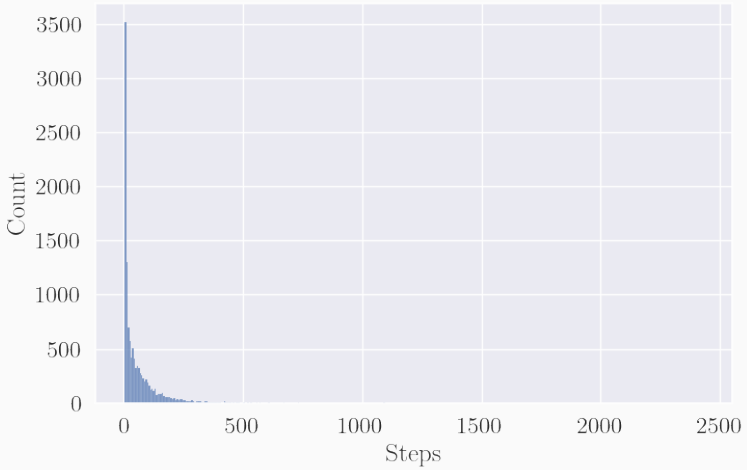
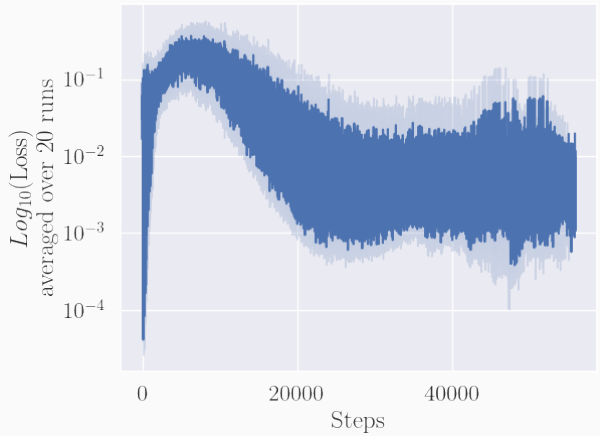
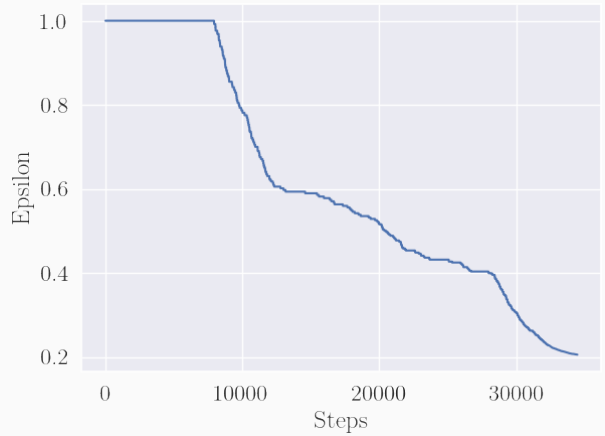
Loss, rewards & steps distributions, exploration/exploitation rate

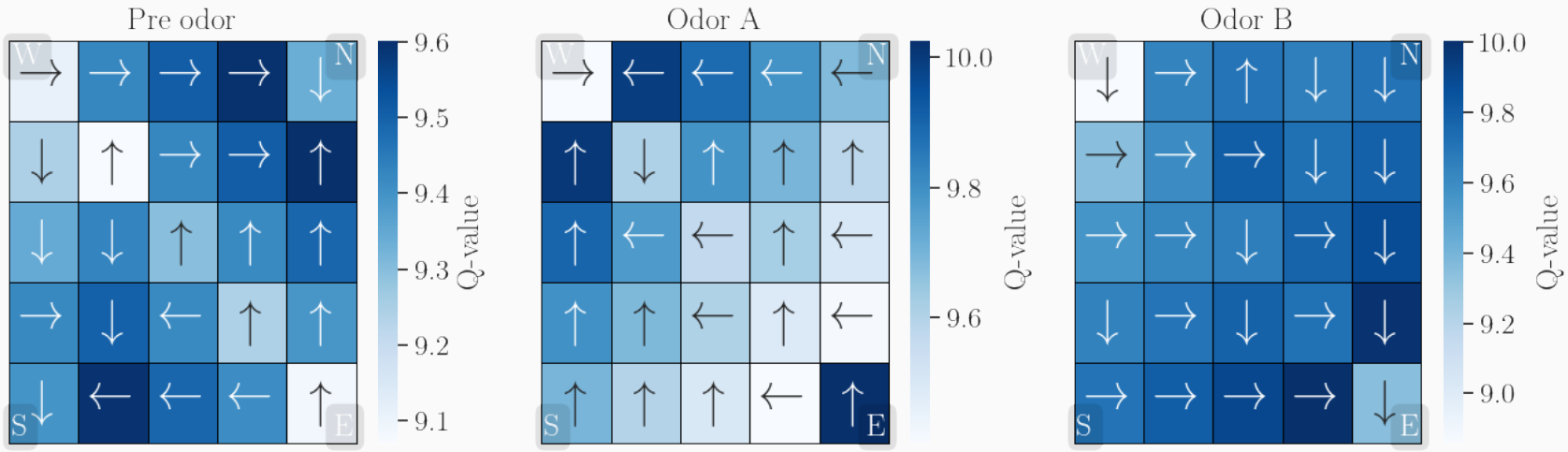








Policy learned



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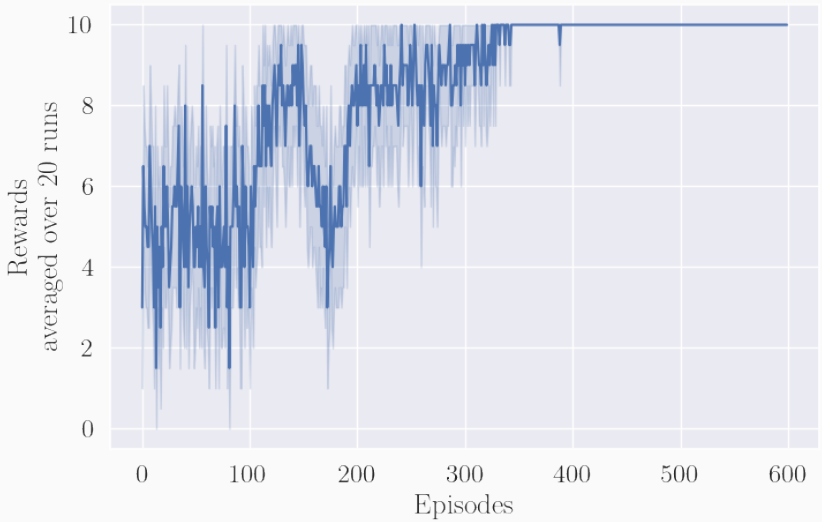
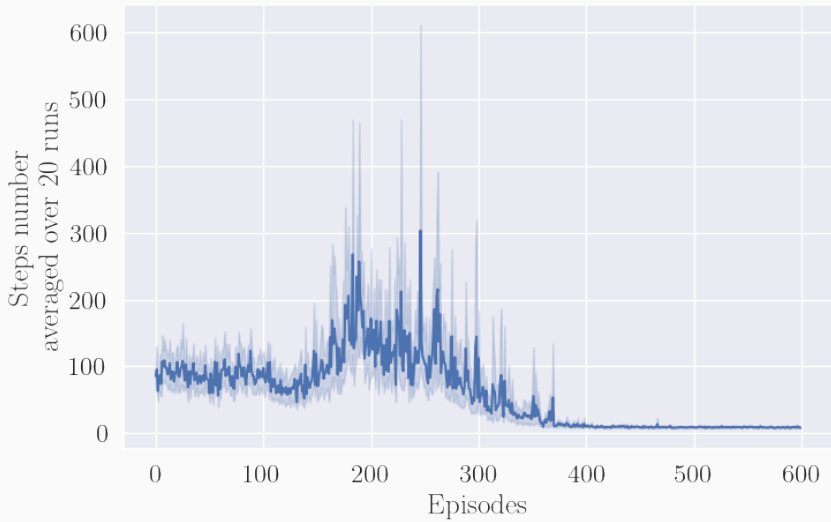
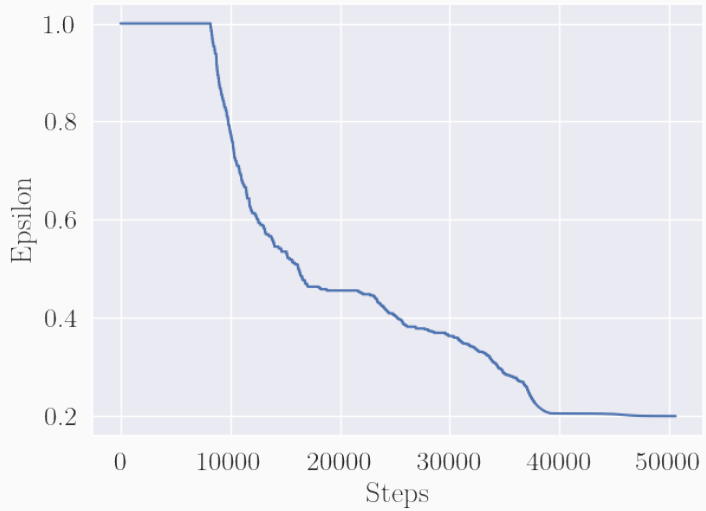
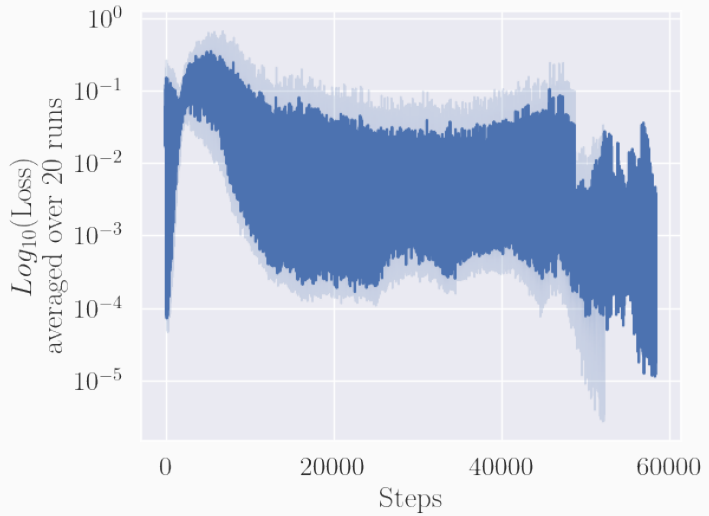
Training only in the lower triangle

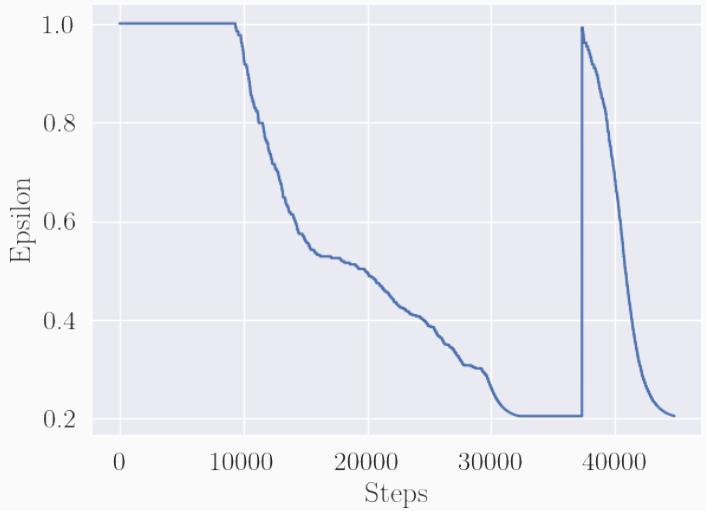


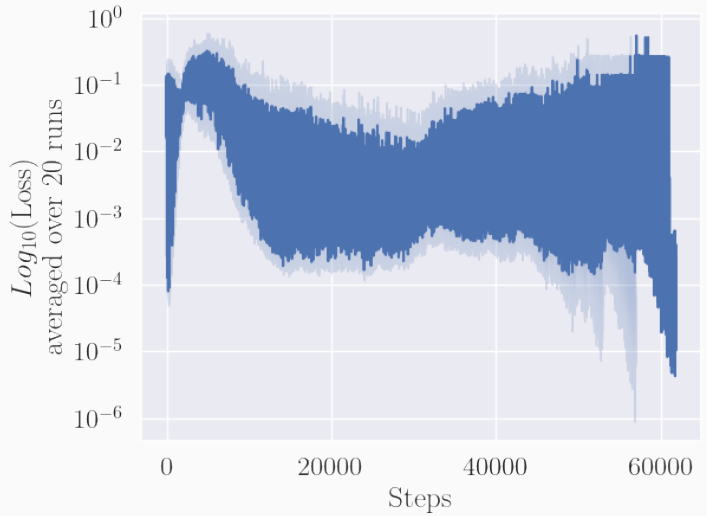


Training only in the lower triangle then switch to the upper triangle









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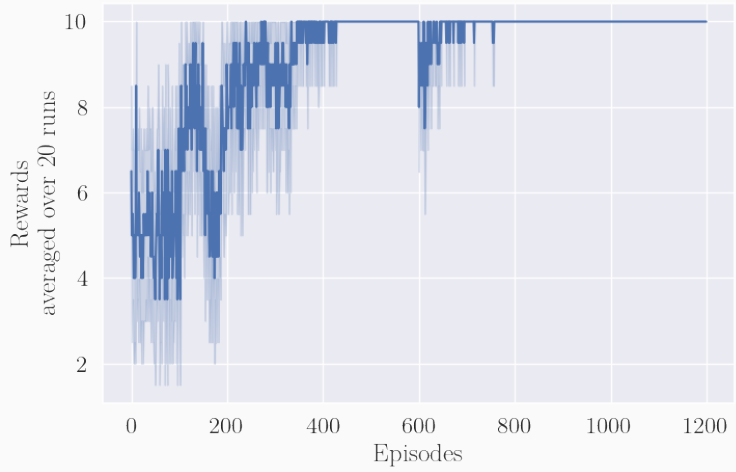

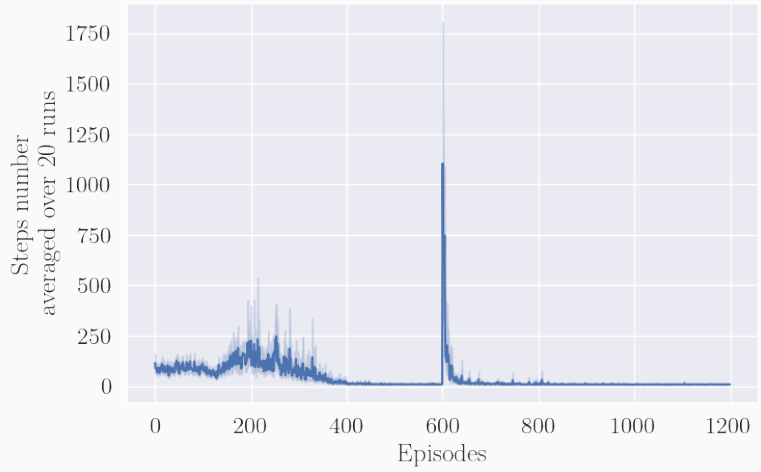

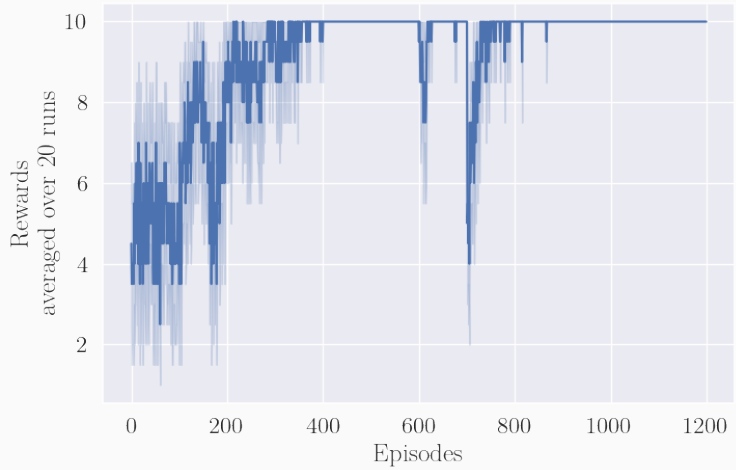

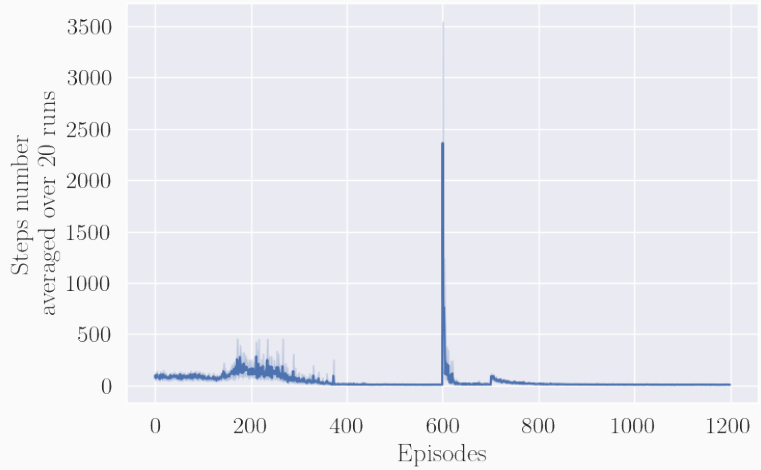

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Points of discussion

- Debrief from the meeting with Thomas
- Topics of discussion for future meetings?
  - How to compare neural data with simulation data?
  - Journal club (e.g. MINDS paper, etc.)
  - Any other topics to add?

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