

# Continual Reinforcement Learning for Robotic Tasks

## Initial Presentaiton

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# Reinforcement Learning

- ▶ describe what RL is, policy, agent, environment

# Continual Learning

- ▶ Learning of multiple tasks in succession
- ▶ Critically important for human intelligence
- ▶ Still a major issue in machine learning[1]

# Catastrophic Forgetting

- ▶ Old skills are forgotten as network is trained on new data
- ▶ Weights are overwritten
- ▶ Traditional approach: replay of old experiences
  - ▶ Keep old training data: storage inefficient, privacy issues
  - ▶ Scales badly for lifelong learning

# Previous Work

- ▶ Elastic Weight Consolidation (EWC)
- ▶ Hypernetworks

# DoorGym

- ▶ Simulated environment for door opening
- ▶ Different types of door handles
  - ▶ Round turn knob
  - ▶ Lever knob
  - ▶ Pull knob
- ▶ Train RL agent to be able to open all types of doors

# Timeline

TODO: gantt chart

# References



G. I. Parisi, R. Kemker, J. L. Part, C. Kanan, S. Wermter, Continual lifelong learning with neural networks: A review, CoRR abs/1802.07569 (2018).

arXiv:1802.07569.

URL <http://arxiv.org/abs/1802.07569>