

# C10: The Asynchronous Advantage Actor Critic Network (A3C)

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## The three As

### Asynchronous

- Instead of having single agent that tries to learn the optimal policy like DQN, A3C has multiple agents interacting to the environment at the same time which is called worker agents
- Another separate agent called global network that all the worker agents report to that aggregates the learning

### Advantage

- Advantage refers to the advantage function that is the difference between the Q function and the value function.
- Advantage function represents how good it is for an agent to perform an action  $a$  in a state  $s$  compared to all other actions

### Actor Critic

- There are two type of network, actor and critic.
- The role of the actor is to learn a policy and the role of the critic is to evaluate how good the policy learned by the actor is