

Communication in Multi-agent Reinforcement Learning

Jack Montgomery

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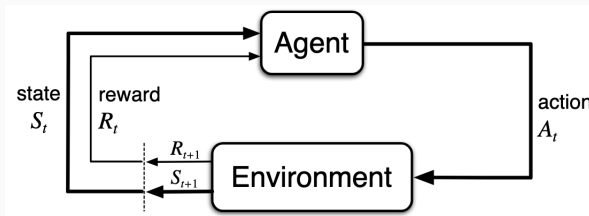
MAM4001W: Advanced Topics in Reinforcement Learning

Motivation

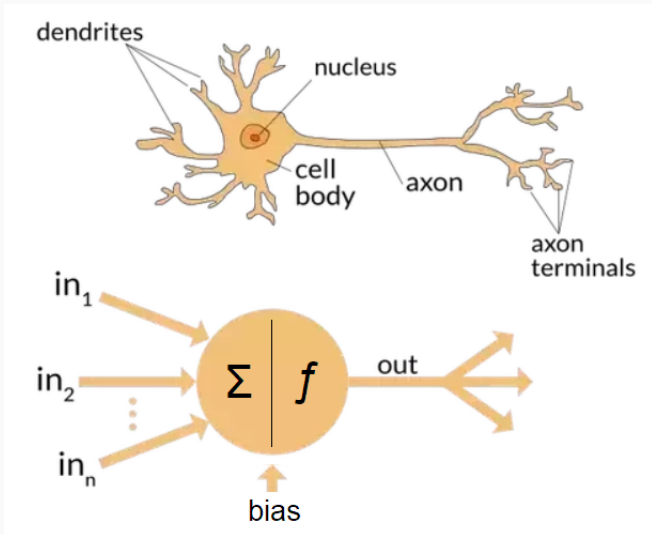
Comm-MARL

Motivation

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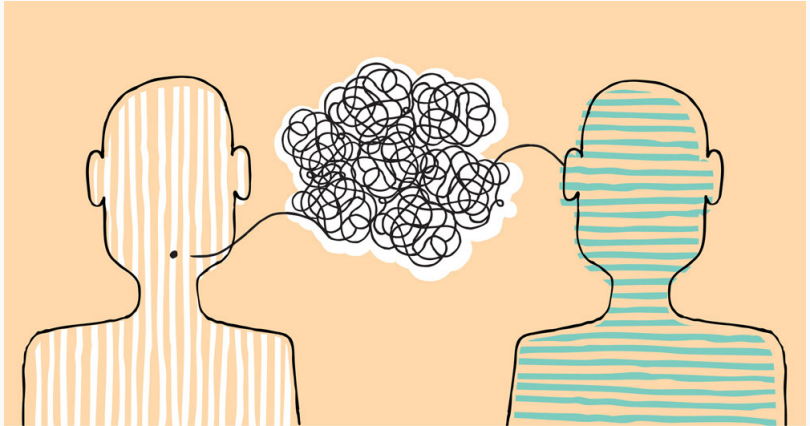


Motivation

- Non-stationarity
- Credit Assignment
- Scaling

Comm-MARL

How do we communicate?



Dimensions of Comm-MARL

Component	Index	Question	Dimension
Problem Setting	1	What kind of behaviours are desired to emerge with communication?	Controlled Goals
	2	How to fulfil realistic requirements?	Communication Constraints
	3	Which type of agents to communicate with?	Communicatee Types
Communication Processes	4	When and how to build communication links among agents?	Communication policy
	5	How to combine received messages?	Message combination
	6	Which piece of information to share?	Communicated messages
	7	How to integrate combined messages into learning models?	Inner integration
Training Processes	8	How to train and improve communication?	Learning methods
	9	How to utilise collected experience from agents?	Training schemes

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