Master Thesis

Communication among autonomous agents in a competitive environment

In a competitive environment, autonomous agents may need to communicate with one another in order to achieve their individual objectives or goals. Communication can help agents coordinate their actions, share information, and avoid conflicts that could arise due to their competition.

There are various types of communication that autonomous agents can use, including explicit communication (i.e., direct communication through messages or signals) and implicit communication (i.e., communication through the actions of the agents themselves). One challenge in communication among autonomous agents in a competitive environment is the potential for deception. Agents may misrepresent their intentions or withhold information in order to gain an advantage over their competitors. This can lead to mistrust among agents and make communication more difficult.

To address these challenges, the thesis is aimed to develop a competitive environment with a few agents who try to communicate/collude explicitly, or implicitly. As an example, we can think about a chat between Bard and Chat GPT in a more complex way. Nevertheless, it does not really need to be two chatbots.

Key tasks and objectives of the thesis

- Developing autonomous agents who are intelligent enough to communicate
- Or use available agents such as chatbots e.g. Bard, ChatGPT
- Develop a competitive environment.
- Analyse the way the agents collude
- Finding ways to avoid

Topics

- Autonomous agents
- Competitiveness
- Chatbots
- Collusion

Methods

- Reinforcement learning

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