Automated Negotiation League (ANL) 2024: An overview

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This document provides an overview of the Automated Negotiating Agents Competition (ANAC) Automated Negotiation League (ANL) 2024. We explain the challenge of this year and the practicalities for participation.

1 Overview

The Automated Negotiating Agent Competition (ANAC) is an international tournament that has been running since 2010 to bring together researchers from the negotiation community. In the Automated Negotiation League (ANL), participants explore the strategies and difficulties in creating efficient agents whose primary purpose is to negotiate with other agent's strategies. Every year, the league presents a different challenge for the participating agents. This year's challenge is:

Design a negotiation agent for bilateral negotiation that has access to its own utility and its opponents utility, but not its opponent's reservation value. The agent that scores best on individual utility, wins.

In previous years, ANAC focused on different complex negotiation aspects, such as learning from the negotiation history or multilateral agreements. This year, the challenge can be described simply: Find the best agreement in a bilateral negotiation on a single issue domain with known utility functions but private reservation values.

ANAC 2024 takes place at the AAMAS conference in Auckland, New Zealand, from May 6 to May 10, 2024. Winners will be rewarded with prize money, and can join the AAMAS conference to present their agent.

2 Set up

In the ANL, all submitted agents will participate in a bilateral negotiation tournament. The agents will negotiate against each other using the Alternating Offers Protocol (AOP) [1]. Here, the starting agent makes an opening offer, which is followed by acceptance, a counteroffer, or a walk-away. Then the process is repeated. If both agents reach an agreement before the deadline (which can vary between 10 and 100000), the outcome's utility is the agent's score. The reservation value is obtained if no agreement is reached, which can differ per agent.

The agents negotiate over a single issue domain. If the negotiation fails, each agent receives a private reservation value. The agent has access to its own utility function and its opponent utility, but remaining challenge is that its opponent's reservation value is unknown.

This year the ANL will use the platform NegMAS. NegMAS supports submissions in Python.[1] You can find a tutorial on how to start your ANL agent in the detailed description of ANL, see further tutorials on designing your agent for ANL here, and if necessary check the general NegMAS documentation here.

[1] If you prefer to submit your agent in JAVA, please get into contact with the organizers.

3 Practicalities

When? The deadline for submitting your agent is April 3, 23.59 GMT.

What? Participants submit their agent source code and (optional) academic report to the submission portal. Specifics on the content can be read in the detailed description.

Why? It is fun! And you can help the negotiation community further in research. Also, the winners receive prize money, can join the AAMAS conference in New Zealand and may give a brief presentation there. Furthermore, the selected agent's papers are planned to be published in the proceedings of coming AAMAS.

What next? The next step would be to register on the submission portal. Then you can take a look at the detailed description with further tutorials.

Figure 1: A pie cut into two pieces