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Call for Submissions

You are invited to submit an agent to the Supply Chain Management League (SCML) of the International Automated Negotiating Agents Competition (ANAC) as part of the IJCAI 2025 official competition track.

ANAC is running since 2010 in conjunction with AAMAS/IJCAI and SCML is running as part of ANAC since 2019.

The Challenge

Design and build an autonomous agent that negotiates on behalf of a factory manager situated in a supply chain management simulation. The goal of a factory manager in SCML is to maximize its profit given its private production capabilities by negotiating trades with other agents. A factory manager can engage in several negotiations simultaneously, for which its utility functions are in general interdependent. These negotiations, and any ensuing contracts, are bilateral. Moreover, they are private to the agents involved.

New in 2025

- We provide support for developing agents using RL/MARL. SCML is now available as a gymnasium and a petting-zoo environment and we provide templates for developing and training models for the competition.
- The Standard track is completely re-designed to simplify its interface and development workflow while keeping the core of the challenge intact.

Negotiation Protocol

Agents are factory managers that control factories with private manufacturing profiles which are revealed at the start of each simulation. Factory manager agents negotiate bilaterally with other agents to buy the necessary inputs to their manufacturing process, and to sell the outputs.

All negotiations are carried out via the alternating offers protocol. This protocol specifies that two negotiators take turns making offers. One agent starts the negotiation with an opening bid, after which the other party can take the following actions:

- Accept the offer
- Make a counteroffer, thus rejecting and overriding the previous offer
- Walk away, thus declaring an end to the negotiation without having reached an agreement

This process is repeated until either an agreement is reached, or the deadline arrives. To reach an agreement, both parties must accept the offer. If no agreement has been reached by the deadline, the negotiation fails.

A single simulation runs for a predefined number of steps with an overall time limit of two hours. All negotiations are conducted for a predefined number of rounds of the alternating offers protocol (with a predefined time limit on each).

Factory manager agents are reset after each simulation. This means that they cannot learn from previous simulations. They can, however, accumulate information about agents during a simulation, as they know their negotiating partners' names.

Platform

Entrants to the competition should develop and submit an autonomous agent that runs on NegMAS. NegMAS is a Python-based negotiation platform in which you can create simulated worlds, like the SCM world, populated with agents capable of engaging in multiple negotiations.

Submission and Live Competition

An unofficial live competition will be run this year, beginning March 25th. All participants are encouraged to upload early versions of their agents to the online submission site and are required to upload a working agent by April 1st. A leaderboard will be maintained, displaying the relative performance of all submitted agents, but no identifying information about the participating teams will be available. This website is also where the final versions of agents should be submitted for the official competition (at which point identifying information will become available).

Evaluation

The competition will be conducted in two rounds, a qualifying round and a final round. All entrants that are not judged to break any of the SCML and ANAC submission rules will be entered into the qualifying rounds. Top-scoring agents in the qualifying round will then be entered in the final round. The organizing committee maintains the right to require that agents surpass a minimum score threshold to advance to the finals or to win one of the prizes. The teams that build the top-scoring agents will be notified in July, with the final results and awards announced at IJCAI 2025 in Auckland. It is expected that finalists will send a representative to the ANAC workshop at IJCAI 2025, whether it is virtual or in-person, where they will be given the opportunity to give a brief presentation describing their agent. Three awards will be announced at IJCAI 2025 (with associated monetary rewards) corresponding to the two tracks (Standard, and OneShot). The latest version of the agent submitted before the competition deadline will be used in the SCM league unless participants opt-out of the official competition.

Resources

For more information about SCML, please refer to the competition's main website.

Questions and Answers

Please check our FAQ. You can post your questions there (preferable), or address any concerns you prefer to remain private to Yasser Mohammad.

Organizing Committee

- Yasser Mohammad, NEC-AIST AI Collaborative Research Laboratory (main contact)
- Katsuhide Fujita, Tokyo University of Agriculture and Technology & NEC-AIST
- Amy Greenwald, Brown University
- Mark Klein, MIT
- Satoshi Morinaga, NEC-AIST AI Collaborative Research Laboratory
- Shinji Nakadai, NEC-AIST AI Collaborative Research Laboratory

Important Dates

- Registration on the competition website (Recommended): April 25th, 2025
- Preliminary submission deadline (REQUIRED): **May 25th, 2025**
- Final submission deadline: **June 1st, 2025**
- Academic Report submission deadline: **June 5th 2025**

Sponsors

- NEC-AIST AI Cooperative Research Laboratory

The organizing committee would like to thank Brown University for hosting the online submission website at https://scml.cs.brown.edu.