

Hot'n'Cold - Performant Reactive Agents In Simulated Auction Scenarios

William Sun
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1 Abstract









We propose a framework for building effective agents that perform highly reactively based on other agents' actions. This framework is lightweight, requiring no pre-training and not leveraging deep learning approaches. Instead, it utilizes heuristics to gauge the opponents' resource advantages and categorizing the strategies likely to be taken by opponents in future rounds, and then building an effective counter-bidding strategy against this theoretical agent.

We demonstrate its effectiveness on the two auction scenarios run by the Algorithmic Game Theory course - the Spectrum Auction and the AdX Auction. The agent performs effectively against a diverse range of agents, from simplistic test bots to deep learning-based agents, winning the Spectrum Auction simulation and placing top 3 in the AdX scenario. It even out-performs bots whose bidding strategies derive from mathematical guarantees on simplified models of these auction scenarios, proving its flexibility.

CS1440 Agent Leaderboard

Game: SpectrumAuctionTest

Last 24 competitions

Agent	ELO	Average Score	#/Games
 Hot'n'Cold	2849	21.949	24
 Mr.ROBOTO	2859	17.975	24
 TA - SECRET	2871	9.086	24
 Mr.ROBOTO(1)	2912	9.003	24
 TA - Jumper	2752	8.122	23
 TA - HAKARI	2844	7.473	24
 DoNotPlay	2837	5.739	24
 TA - Truthful	2829	5.654	23