

BraveCat agent is consistent with the BOA framework, so each BOA component is explained briefly. Our agent uses a novel hybrid bidding strategy which combines a time dependent strategy, a random strategy, and an imitative strategy. A normal distribution function is used to exhibit the random behavior. This function enables a gradual transition from a random behavior to a deterministic behavior as the time passes. We also use a specific form of tit for tat strategy to show the imitative behavior. Our behavioral strategy is different in the sense that it only rewards nice moves from the opponent. For opponent modeling component, we design a new distance based model, and use it to estimate the utility of a candidate bid to be sent to the opponent in each round. In this model, we use two kinds of similarities: Natural Similarity, which is calculated using the Euclidean Distance between two bids, and Temporal Similarity, which is the difference between the times, in which each bid is offered by the opponent. Then the estimated utility of a candidate bid is calculated based on these two values for each of the last 100 bids received from the opponent and that candidate bid. For the Acceptance Strategy, we used a combined strategy which is comprised of two parts: 1) initial rounds, 2) final rounds. For final rounds, the strategy is to accept unconditionally, provided that the opponent offers a bid with a utility greater than the agent's reservation value. For the initial rounds, the agent accepts the incoming bid if the utility is greater than or equal to **0.8**. The agent also accepts an incoming bid, if its utility is equal to or greater than the mean value of the worst bid and the best bid it has ever sent during that negotiation session.