

IMAS-MAI

Activity 2

Team 5

Jordi Armengol, Víctor Giménez, Joan Llop,
Daniel Ordoñez, Albert Rial

University Rovira i Virgili
Master in Artificial Intelligence

Auctions

- Bids based on credibility.
- Credibility can be used for: killing off bad classifiers, weighting predictions, detecting indecisiveness, more information in accuracy report.
- Exploits deliberative/hybrid manager beyond reactivity.
- Very verbose, computationally expensive, complex decisions for implementing.

Voting

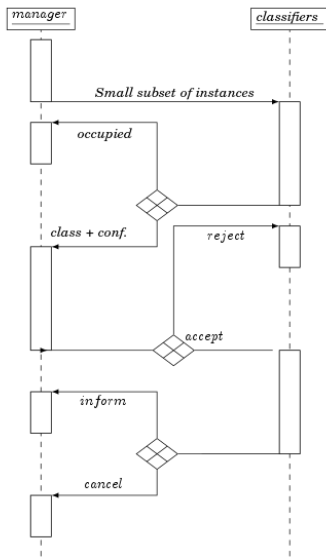
- Suitable for aggregating the decisions of the classifiers (same hierarchy).
- Not suitable for user and manager agents (1-to-1, 1-to-many relations).
- Similar to ensemble learning.
- Plurality would be the simplest alternative.
- Best-worst or approval voting by taking the probability of each class in multi-class classification.
- The other voting systems could be useful, but they are way too complex for our needs.

Coalition Formation

How would it be structured?

- Prediction: Only task/action requiring cooperation.
- Classifier Agent: Only agent with capability to perform the *prediction* task. Its capability *value* will be proportional to the agent training performance.
- Manager Agent: Acting as an *external agency* making the decisions to find the best Coalition's formation structure.

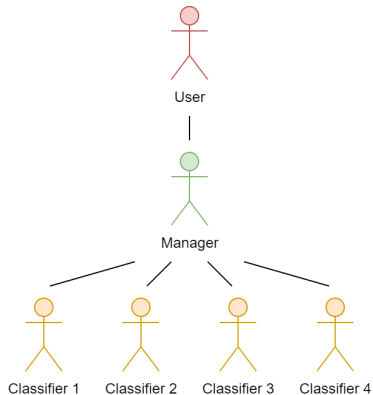
Contract Net



- Allows concurrency by executing the full batch of instances in only one agent.
- We are assuming that the characteristics of a batch can be represented by a small subset of instances.
- May lead to sub-optimal results.

Organisational structures

- User controls what the Manager and the whole system do.
- Manager coordinates and supervise all the classifiers.
- Classifiers are specialised in concrete tasks and fully collaborative.



Summary

	Appropriate	Applicable but not appropriate	Not applicable
Auctions		✓	
Voting	✓		
Coalition formation		✓	
Contract Net		✓	
Organisational structures	✓		