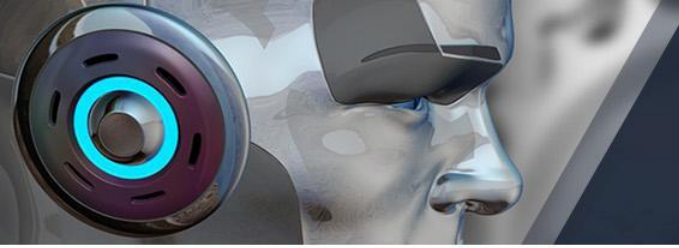




HackTrick

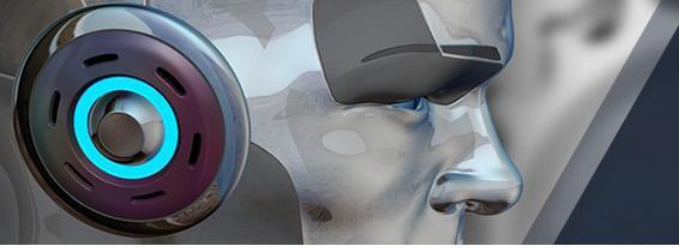
#DellTechHackathon

Dell Technologies



Algorithm and Approach

- The problem can be solved in a direct approach by exploring all possibilities and choosing the best one
- Our approach to the problem was to divide it into two hierarchical levels
- The high level determines milestone actions such as: bringing a component to the construction site, beginning construction, or delivering the finished SolarLab
- It was implemented using rule-based agent
- The low level handles the agents' motion from one point to another in the environments
- It was implemented using A* algorithm with Manhattan distance as a heuristic function
- We also used Dynamic Programming to tabulate the A* algorithm results

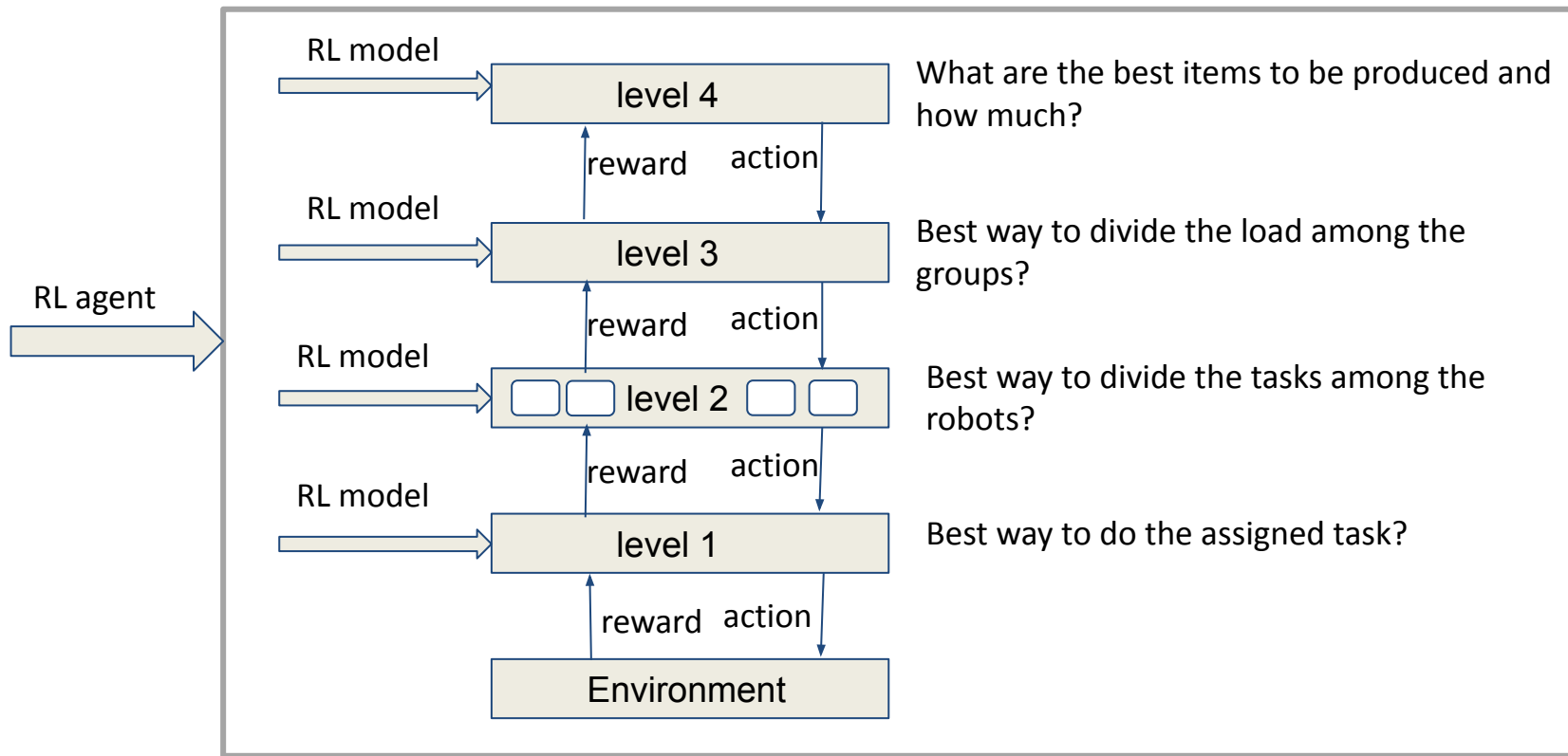


Real Life and Improvements

- Implementations can be improved for both levels by utilizing RL
- Another higher level could be added to determine the next best item to be constructed
- For more complex scenarios, higher levels could be added
- These levels can be thought of as a company with a manager at the top who decides the company strategy.
- The order is then passed to the companies branches and each branch chooses the action to achieve the strategy and so on



Real Life and Improvements



Challenges and TeamWork

- Difficulty in managing both professional work and the competition
- Time constraints for each challenge
- Our team consists of 4 members:
 - 2 members worked on the lower level task and merged all the work
 - 1 member for the high-level task
 - 1 member worked on the UI/UX track





**Any
Question ?**