

AI exp-7

0.1) Adv & Disadv for each

→ Adv

1. Systematic exploration ensures thorough consideration of possible solns
2. can handle large prblm space with appropriate pruning
3. certain algo guarantee optimality like A* search

→ Disadv

1. complexity can lead to high computational cost
2. No guarantee of termination, especially in infinite space
3. some prblm may have state spaces that are too large

0.2) Adv & Disadv for Hill climbing

→ Adv

1. simplicity makes it ez to implement
2. can be computationally eff for prblms
3. requires minimal memory overhead

→ Disadv

1. Tends to get stuck in local optima, failing to find global optimum
2. limited exploration of search space
3. performance heavily depends on solution

0.3) variation→ Simple Hill climbing

1. moves to first neighbor state that improves the current
2. Prone to getting stuck in local optima
3. simple & computationally eff

→ Steepest - Ascent Hill Climbing

1. Examining all neighbor states & choosing one that max improvement
2. often finds better solution but can be more expensive
3. Address issue of getting stuck in local optima

→ Simulated Annealing

1. Introduce randomness to allow uphill moves with probability
2. Help to escape local optima by exploring wider range of solutions
3. Reg tuning of param like temp & cooling

0.4]

→ 1.] Problem Representation: Define initial & goal state & available actions like picking up & putting down blocks

2.] Action Preconditions & Effects: Specify conditions for actions to be applicable & how they change state

3.] Planning & Execution: Use a planner to generate a seq of actions & execute them to achieve goal state.