

Assignment 10

Project Methodology Essay Preparation

Terminology Review

Write 1 paragraph explaining what each of the following terms mean:

1. Combinatorial problem
2. State and scoring/fitness function
3. Search and Optimization algorithm
4. Global and Local Maximum
5. Local Neighborhood

For each of them give some examples.

Methods Review

You've learned about a lot of different techniques that build on each other, it's time for you to review them and write about them. For each of the following techniques, write between 1 and 3 paragraphs about them:

1. Exhaustive Searching
2. Informed Search
3. Heuristics
4. Hill Climbing
5. Genetic Algorithms
6. Genetic Algorithms with LLMs

For each of them you should try to answer some of the following questions:

- Is it a search or optimization method?
- How does it explore states?
- What kind of parameters does this method require?
- What are the advantages of using this method?
- What are the disadvantages of using this method?
- Does it need to be tuned, and if so, what are common limitations need to be addressed?