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Class: INFO 6205

Final: Particle Swarm Optimization

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PSO:

1. Problem Statement:
   1. I want to drive to travel around America in the future. I will visit at least all the capital cities of states in America. I wonder what’s the shortest route? Supposing I will start from Boston, and I will finally return to Boston after this long journey.
   2. It’s not an academic problem, but It’s really based on my personal interests.
2. Proposed Solution:
   1. For information of cities, I will use their geography coordinates to calculate their distances between any two capital cities, and store them in memory.
   2. I will use one particle to simulate one travel route. Supposing I set 30-50 particles, and assess their fitness (total distances) in each iteration. Then according to pbest and gbest to design a new route for each particle.
   3. I might combine PSO with some features of Genetic Algorithm. The combination is for getting an optimal global solution.
   4. For each iteration, I will parallel compute each particle to make my program more efficient.