Evolutionary AI

2021 Fall

Homework 1

Solve 0/1 Knapsack Problem using two kinds of GA:

1) Roulette wheel selection, 3-point crossover, and bitwise mutation.
2) Pairwise tournament selection, 3-point crossover, and bitwise mutation.

Parametric values to be used are:

- Crossover probability (Pc) = 0.9
- Mutation probability (Pm) = 0.01
- Population size = 100
- Generations = 100

If an individual exceeds the capacity limit, the fitness value is assigned ‘0’.

The problem specification is in Data(0-1Knapsack).txt .

Submit a zip file to the TA’s email containing the following:

- Fitness value trace (plot the average fitness values of populations for each generation)
- The final population and their fitness values (text file)
- Source code (Python, C, or C++)

The name of the file must include your name and your student id.

Due: 10/4 10:30 am

Email: cheetos@gm.gist.ac.kr