Genetic Algorithm Reading Materials
CSE 4108- Spring 2018

Mir Imtiaz Mostafiz

1 Basic Algorithm

Algorithm 1 A Genetic Algorithm Pseudo-Code

```
1: Choose an initial random population of individuals
2: Evaluate the fitness of the individuals
3: repeat
4:     Select the best individuals to be used by the genetic
       operators
5:     Generate new individuals using crossover and mu-
       tation
6:     Evaluate the fitness of the new individuals
7:     Replace the worst individuals of the population by
       the best new individuals
8: until some stop criteria
```

2 Selection Methods

1. Roulette Wheel Selection
2. Stochastic Universal Sampling (SUS)
3. Tournament Selection
4. Rank Selection

5. Random Selection

Source: https://www.tutorialspoint.com/genetic_algorithms/genetic_algorithms_parent_selection.htm

3 Crossover Operators

1. One-Point
2. Multi-Point
3. Uniform
4. Davis's Order (OX1)
5. Cycle
6. Partially Match (PMX)

Source:

- https://www.tutorialspoint.com/genetic_algorithms/genetic_algorithms_crossover.htm
- rubicite.com/Tutorials/GeneticAlgorithms/CrossoverOperators/CycleCrossoverOperator.aspx

4 Mutation Operators

1. Bit Flip
2. Swap
3. Inversion
4. Scramble

https://www.tutorialspoint.com/genetic_algorithms/genetic_algorithms_mutation.htm

5 Example Code

Link: https://repl.it/@ImtiazNaved/TreasuredUntrueDehardwarization