

Evolutionary Computation, 2019/2020

Programming assignment 2

Important information

- Deadline: 27/Oct/2019, 23:59.
- You should submit through the 'tutoria' a ZIP file containing all the code that you developed. The zip file should also include a 'readme.txt' file explaining how to compile and run the program.
- The name of the zip file must be the letter 'a' followed by your student number, followed by '-P2.zip'. Example: if your student number is 12345, the file name must be a12345-P2.zip
- You must discuss your work with the instructor at the lab class on 30/Oct/2019.

Description

The purpose of this programming assignment is to extend programming assignment 1 by implementing by making it more general. In particular, you should implement the following:

- Roulette wheel selection.
- Stochastic Universal Selection (SUS).
- Tournament selection with replacement for a given tournament size s .
- Tournament selection without replacement for a given tournament size s .
- Truncation selection for a given τ percentage.
- k -point crossover.
- Uniform crossover.
- Worst replacement for a given α , with α being the percentage of individuals from the previous population that will be removed.

As in the first assignment, your program should read configuration/parameters from an input file. In addition to those that you use in the first assignment, you should now have configuration options to allow the user to specify what selection method should be applied (and associated parameter if needed: s in case of tournament, τ in case of truncation), what crossover operator should be applied and in case k -point is chosen what k value to use, and what α value should be used for the replacement strategy ($\alpha = 1.0$ corresponds to full replacement.)

You should test and debug your program carefully to make sure everything is properly implemented.

You can program in any language that you like.

You will be graded based on the correctness of the implementation and on the quality of the code. It is expected that you code according to good programming practices.