

A4M33BIA: Exercise #3

Simple Genetic Algorithm

Replacement Strategy

Jiří Kubalík

kubalik@fel.cvut.cz

Jan Drchal

drchajan@fel.cvut.cz

Task

- Download sources from <https://cw.felk.cvut.cz/wiki/courses/a4m33bia/labs>
- Implement methods
 - evolvePopGenerationalmethod()
 - evolvePopSteadyState()
- Experiment with defined fitness functions.

Generational Strategy

```
1  initialize(oldPopulation)
2  evaluate(oldPopulation)
3  while(not termination condition)
4      newPopulation ← bestOf(oldPopulation)    // elitism
5      while(newPopulation not full)
6          parents ← select(oldPopulation)
7          offspring ← crossover(parents)
8          mutate(offspring)    // optional
9          evaluate(offspring)
10         newPopulation ← offspring
11     swap(oldPopulation, newPopulation)
12 return bestOf(oldPopulation)
```

Steady-State Strategy

```
1 initialize(population)
2 evaluate(population)
3 while(not termination condition)
4     parents ← select(population)
5     offspring ← crossover(parents)
6     mutate(offspring)    // optional
7     evaluate(offspring)
8     population ← offspring    // replacement rule
9 return bestOf(population)
```