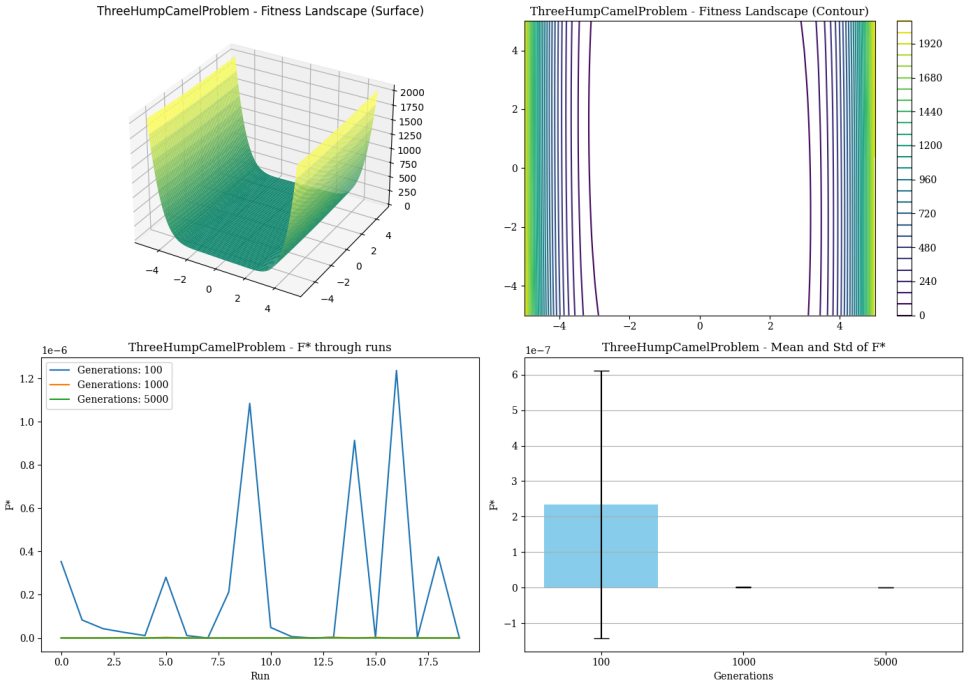
MOOA 2 Raport

1. Three-hump camel problem

Graphs:



Results:

- *100 generations:*
  - Average values = 2.348370251329343e-07
  - Standard deviation = 3.770077527956364e-07

- *1000 generations:*
  - Average values = 7.252181183904319e-10
  - Standard deviation = 1.0135691661450206e-09

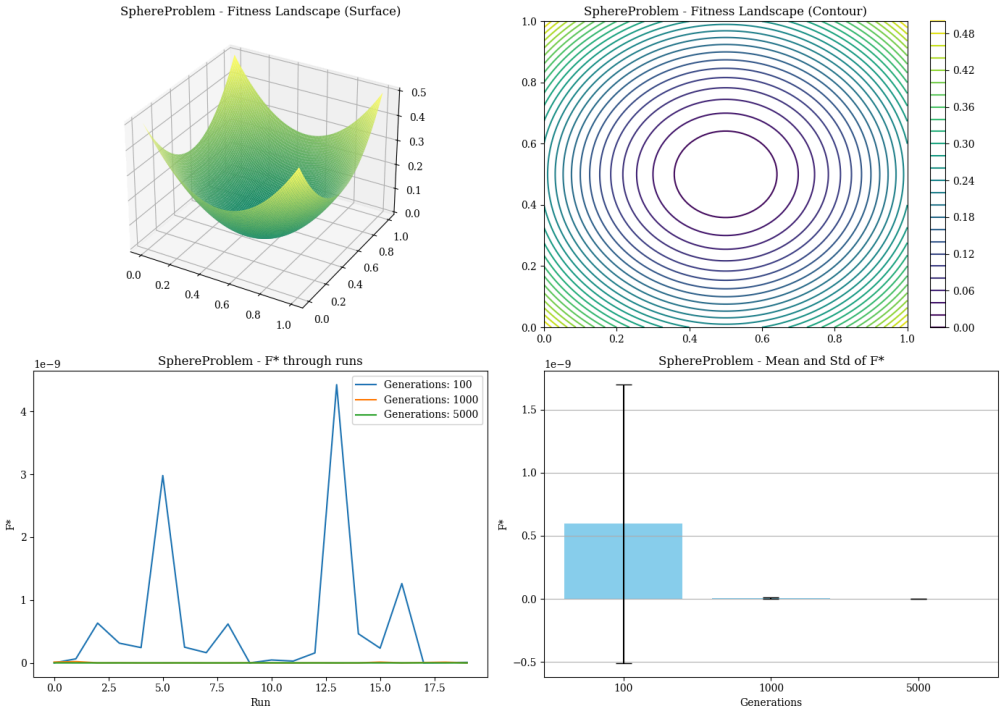
- *5000 generations:*
  - Average values = 1.67532102840095e-11
  - Standard deviation = 1.7835538364928366e-11

Conclusions:

Optimal solution for this problem is F*(x1,x2) = 0 for x1 = 0 and x2 = 0. Results are not surprising, more generations = results (average values) closer to optimum. With more generations also standard deviation is getting smaller relative to average values so results become more consistent.

2. Sphere problem

Graphs:



Results:

- *100 generations:*
  - Average values = 5.953792200543803e-10
  - Standard deviation = 1.1031940478540098e-09

- *1000 generations:*
  - Average values = 3.5877849764276765e-12
  - Standard deviation = 5.589146471520756e-12

- *5000 generations:*
  - Average values = 1.1022391152244812e-13
  - Standard deviation = 2.1487621650119046e-13

Conclusions:

Optimal solution for this problem is F*(x1,x2) = 0 for x1 = 0 and x2 = 0. Same as in the previous problem, more generations = results (average values) closer to optimum. With more generations also standard deviation is getting smaller relative to average values so results become more consistent.

3. Final conclusion

There is no surprise, allowing more generations in algorithm makes average values closer to optimum and lowers standard deviation relative to average values, so results become more consistent