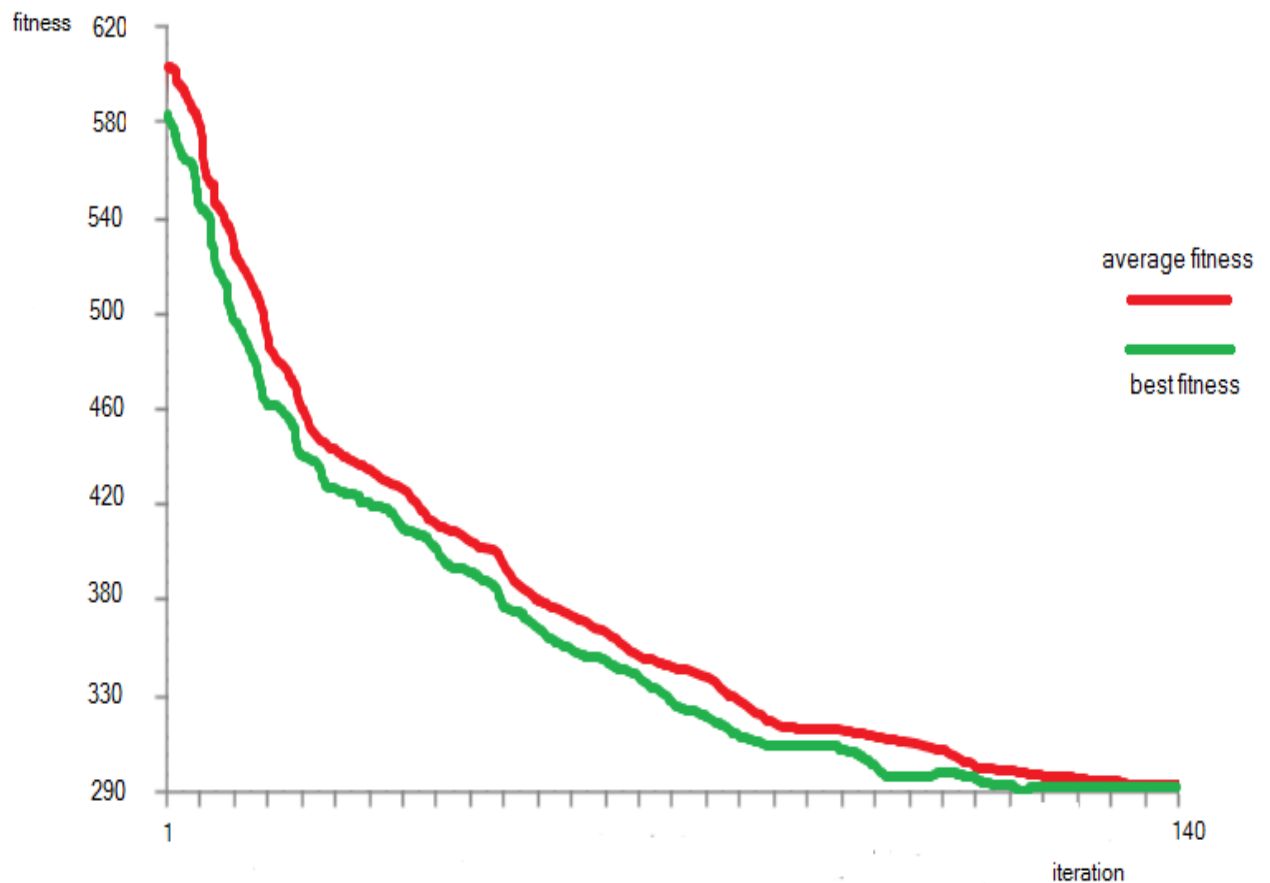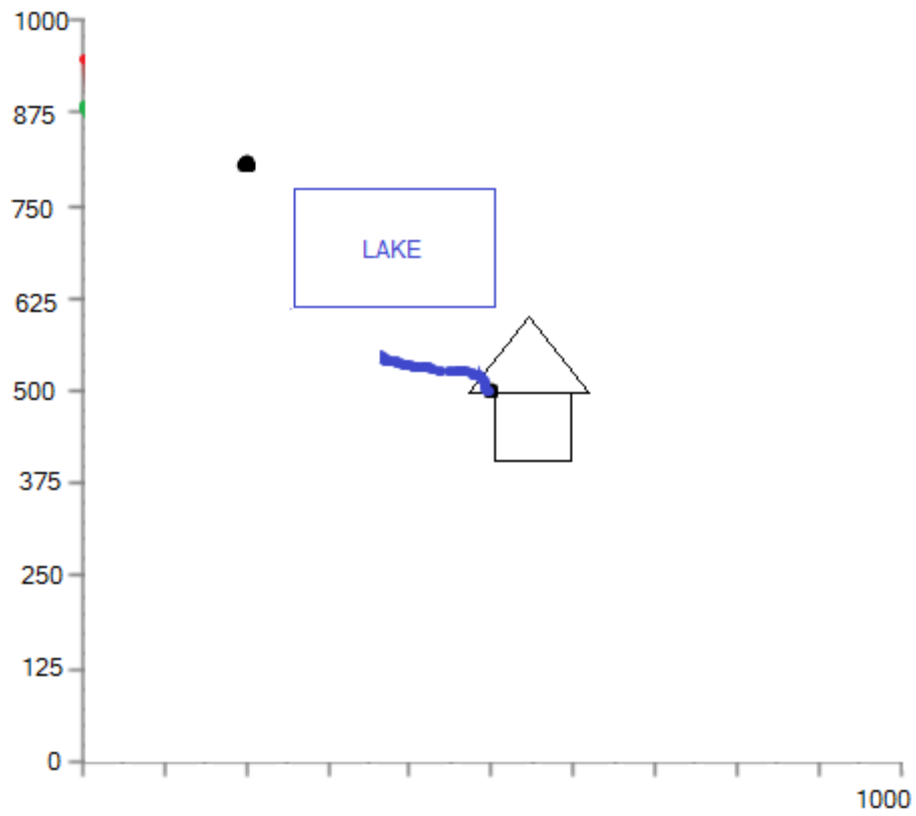**Pavel Zadoyaniy**

LUCKY DOG ALGORITHM:

1. Create 100 chromosomes at random, where each chromosome contains 1000 gens (1-up, 2-down, 3-left, 4-right).

2. Fitness is the number of steps to sausage - the less the better.

3. The house with dog is on position (500;500).

4. Position of the sausage is (200;800).

5. Produce populations of dogs until we get the dog which will reach the sausage.
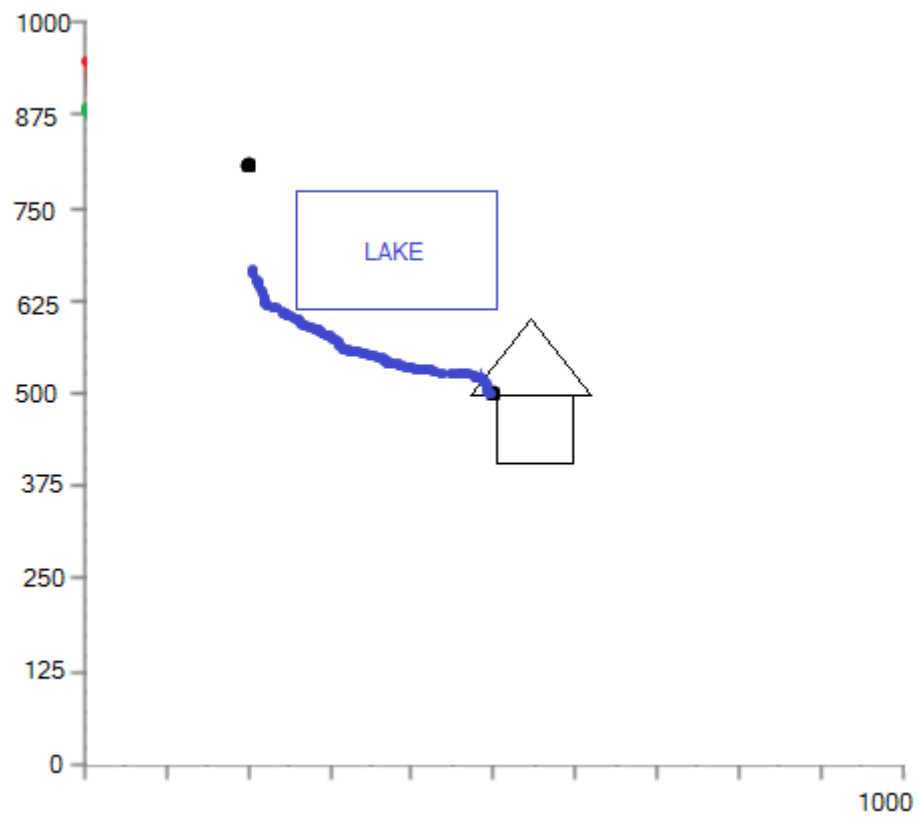
<u>**Scenario 1 (without mutation).**</u>
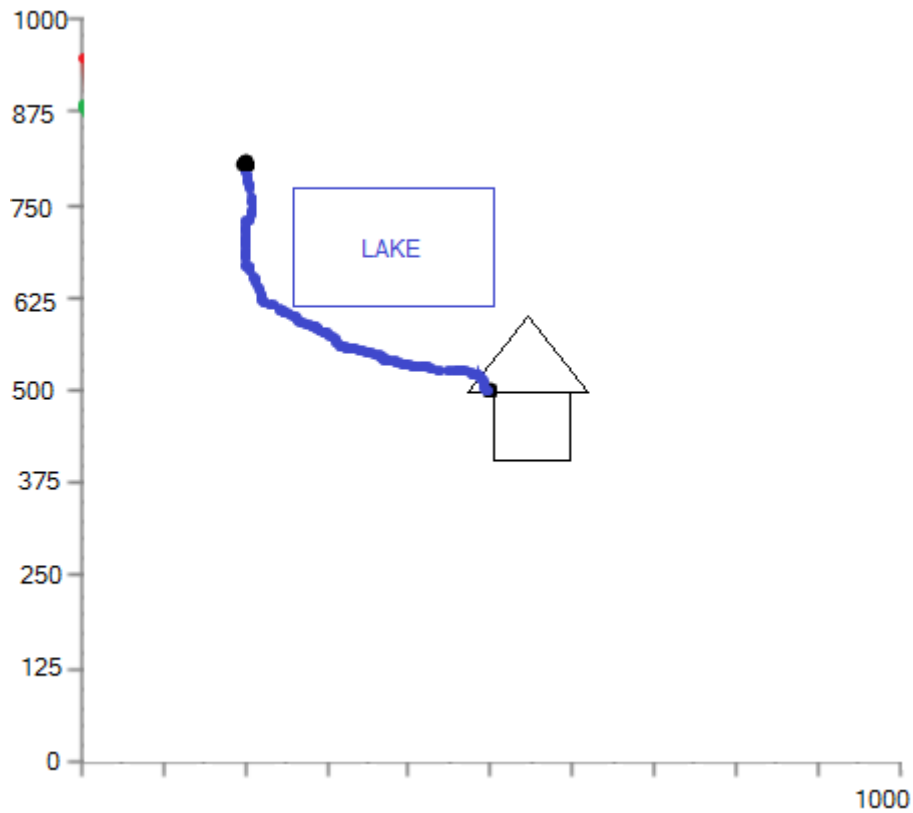
Graph 1 – Best and average fitness in generation.

Graph 2.1 – best route to sausage (1ˢᵗ)

Graph 2.2 – best route to sausage (intermediate)

Graph 2.3 – best route to sausage (final)

Scenario 2 (with mutation).

Graph 1 – Best and average fitness in generation.

Graph 2.1 – best route to sausage (1st)
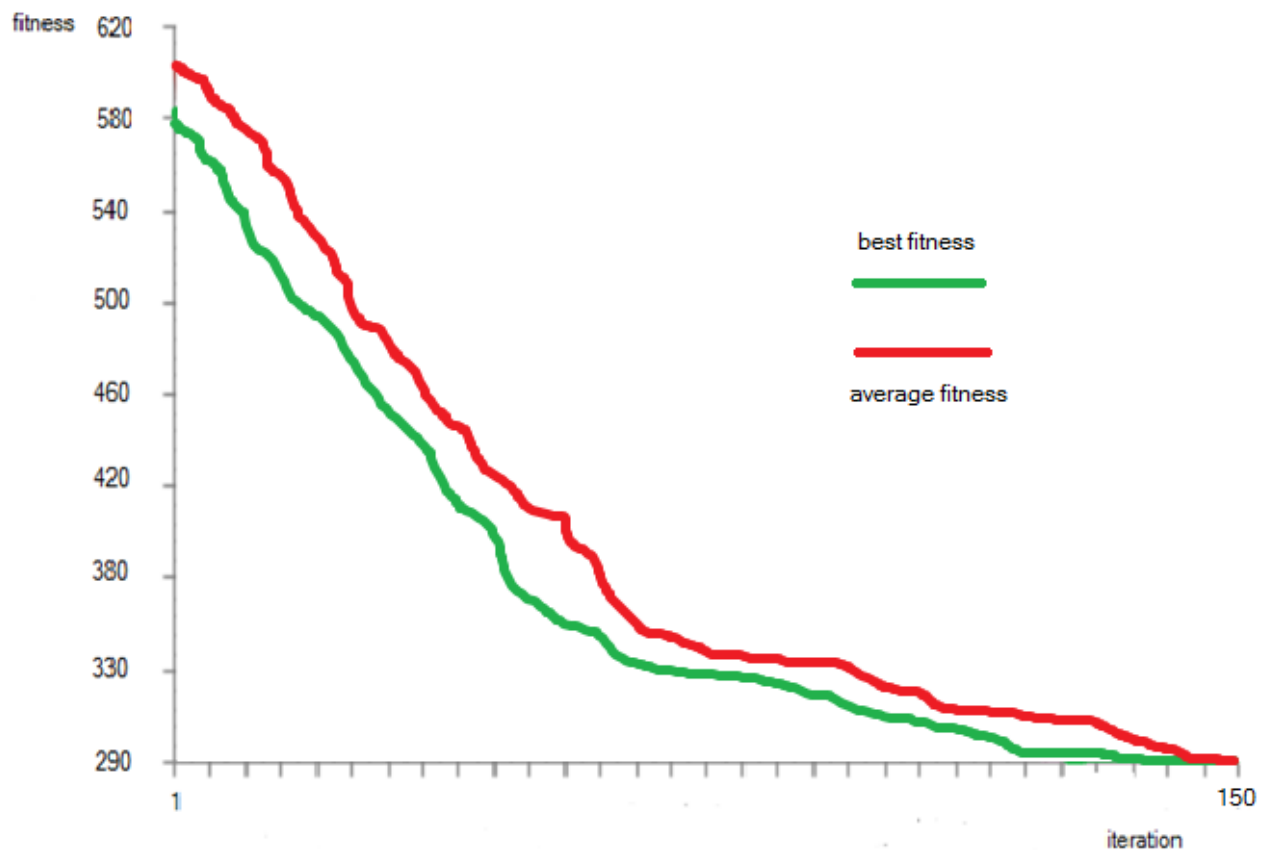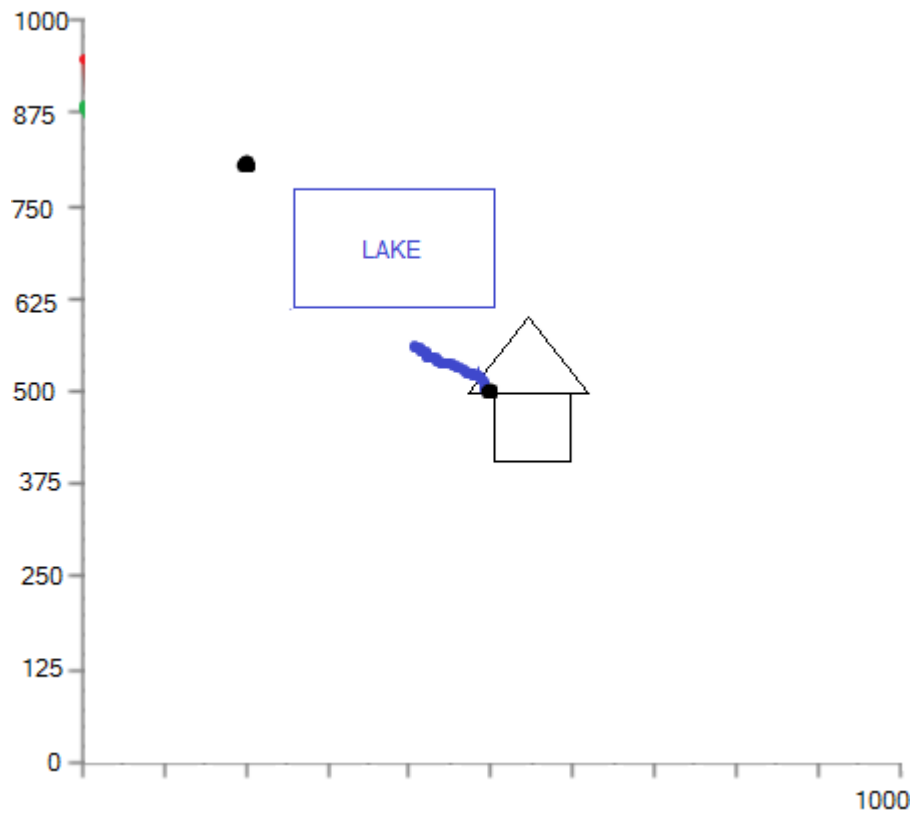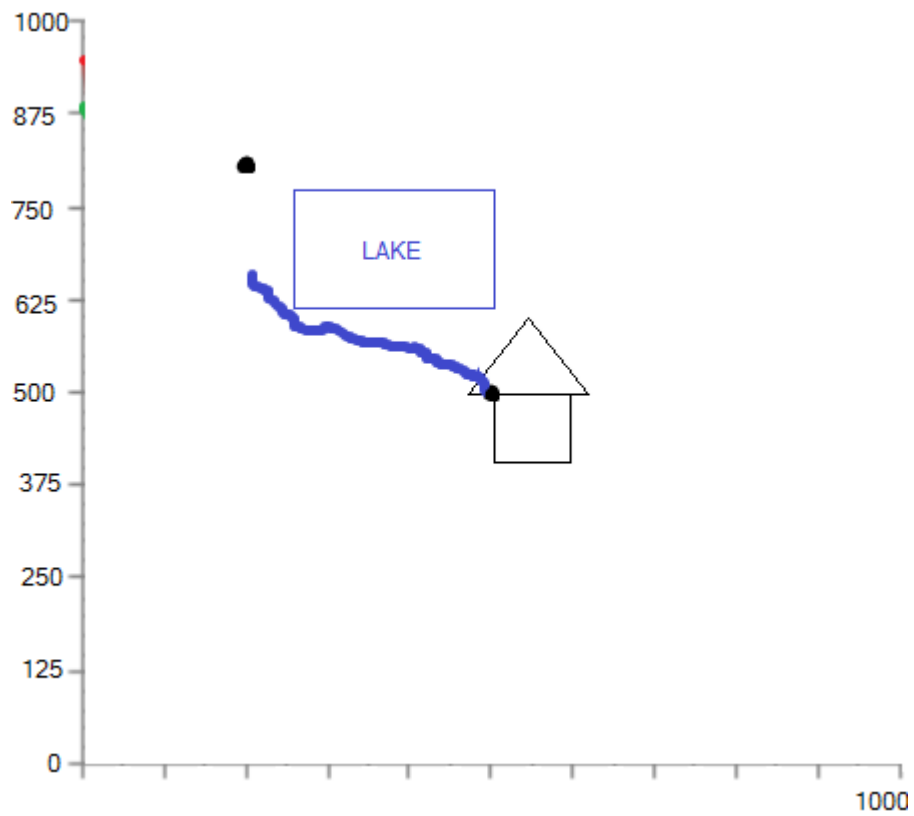

Graph 2.2 – best route to sausage (intermediate)

Graph 2.3 – best route to sausage (final)