# Test 1

**GA configuration**

ELITISM\_COUNT = 2  
TOURNAMENT\_SIZE = 3  
CROSSOVER\_PROBABILITY = 0.7  
MUTATION\_PROBABILITY = 0.05  
MUTATION\_STANDARD\_DEVIATION = 0.10  
WEIGHT\_CLIP\_LIMIT = 3.0

**Fitness evaluation modifiers**

FOOD\_REWARD = 0.5  
FRIEND\_ATTACK\_PENALTY = -0.3  
ENEMY\_ATTACK\_REWARD = 0.3  
HEAD\_FRIEND\_CRASH\_PENALTY = -0.2  
HEAD\_ENEMY\_CRASH\_PENALTY = -0.2  
ALIVE\_BONUS\_PER\_TURN = 0.02

Gen 190/200... avg\_fitness: 1.42e+01

Gen 191/200... avg\_fitness: 1.33e+01

Gen 192/200... avg\_fitness: 1.35e+01

Gen 193/200... avg\_fitness: 1.32e+01

Gen 194/200... avg\_fitness: 1.51e+01

Gen 195/200... avg\_fitness: 1.35e+01

Gen 196/200... avg\_fitness: 1.16e+01

Gen 197/200... avg\_fitness: 1.54e+01

Gen 198/200... avg\_fitness: 1.35e+01

Gen 199/200... avg\_fitness: 1.45e+01

Gen 200/200... avg\_fitness: 1.55e+01

Game 1...won by SinglePerceptronGA (orange) with score=185 after 100 turns.

Game 2...won by SinglePerceptronGA (orange) with score=205 after 100 turns.

Game 3...won by SinglePerceptronGA (orange) with score=171 after 100 turns.

Game 4...won by SinglePerceptronGA (orange) with score=218 after 100 turns.

Game 5...won by SinglePerceptronGA (orange) with score=196 after 100 turns.

# Test 2

**GA configuration**

ELITISM\_COUNT = 4  
TOURNAMENT\_SIZE = 4  
CROSSOVER\_PROBABILITY = 0.8  
MUTATION\_PROBABILITY = 0.03  
MUTATION\_STANDARD\_DEVIATION = 0.05  
WEIGHT\_CLIP\_LIMIT = 3.0

**Fitness evaluation modifiers**

FOOD\_REWARD = 0.5  
FRIEND\_ATTACK\_PENALTY = -0.3  
ENEMY\_ATTACK\_REWARD = 0.3  
HEAD\_FRIEND\_CRASH\_PENALTY = -0.2  
HEAD\_ENEMY\_CRASH\_PENALTY = -0.2   
ALIVE\_BONUS\_PER\_TURN = 0.02

Gen 190/200... avg\_fitness: 9.62e+00

Gen 191/200... avg\_fitness: 7.69e+00

Gen 192/200... avg\_fitness: 9.33e+00

Gen 193/200... avg\_fitness: 8.32e+00

Gen 194/200... avg\_fitness: 8.51e+00

Gen 195/200... avg\_fitness: 9.17e+00

Gen 196/200... avg\_fitness: 8.41e+00

Gen 197/200... avg\_fitness: 8.53e+00

Gen 198/200... avg\_fitness: 8.01e+00

Gen 199/200... avg\_fitness: 8.19e+00

Gen 200/200... avg\_fitness: 9.60e+00

Game 1...won by SinglePerceptronGA (orange) with score=125 after 100 turns.

Game 2...won by SinglePerceptronGA (orange) with score=101 after 100 turns.

Game 3...won by SinglePerceptronGA (orange) with score=111 after 100 turns.

Game 4...won by SinglePerceptronGA (orange) with score=113 after 100 turns.

Game 5...won by SinglePerceptronGA (orange) with score=178 after 100 turns

# Test 3 – Food First

**GA configuration**

ELITISM\_COUNT = 2  
TOURNAMENT\_SIZE = 3  
CROSSOVER\_PROBABILITY = 0.7  
MUTATION\_PROBABILITY = 0.05  
MUTATION\_STANDARD\_DEVIATION = 0.10  
WEIGHT\_CLIP\_LIMIT = 3.0

**Fitness evaluation modifiers**

FOOD\_REWARD = 0.8  
FRIEND\_ATTACK\_PENALTY = -0.3  
ENEMY\_ATTACK\_REWARD = 0.8  
HEAD\_FRIEND\_CRASH\_PENALTY = -0.5  
HEAD\_ENEMY\_CRASH\_PENALTY = -1.0   
ALIVE\_BONUS\_PER\_TURN = 0.02

Gen 190/200... avg\_fitness: 1.21e+01

Gen 191/200... avg\_fitness: 1.28e+01

Gen 192/200... avg\_fitness: 1.20e+01

Gen 193/200... avg\_fitness: 1.17e+01

Gen 194/200... avg\_fitness: 1.21e+01

Gen 195/200... avg\_fitness: 1.08e+01

Gen 196/200... avg\_fitness: 1.10e+01

Gen 197/200... avg\_fitness: 1.22e+01

Gen 198/200... avg\_fitness: 1.19e+01

Gen 199/200... avg\_fitness: 1.23e+01

Gen 200/200... avg\_fitness: 1.24e+01

Game 1...won by SinglePerceptronGA (orange) with score=192 after 100 turns.

Game 2...won by SinglePerceptronGA (orange) with score=221 after 100 turns.

Game 3...won by SinglePerceptronGA (orange) with score=170 after 100 turns.

Game 4...won by SinglePerceptronGA (orange) with score=131 after 100 turns.

Game 5...won by SinglePerceptronGA (orange) with score=129 after 100 turns

# Test 4 – Balanced Skirmisher

**GA configuration**

ELITISM\_COUNT = 2  
TOURNAMENT\_SIZE = 3  
CROSSOVER\_PROBABILITY = 0.7  
MUTATION\_PROBABILITY = 0.05  
MUTATION\_STANDARD\_DEVIATION = 0.10  
WEIGHT\_CLIP\_LIMIT = 3.0

**Fitness evaluation modifiers**

FOOD\_REWARD = 0.5  
FRIEND\_ATTACK\_PENALTY = -0.3  
ENEMY\_ATTACK\_REWARD = 0.3  
HEAD\_FRIEND\_CRASH\_PENALTY = -0.2  
HEAD\_ENEMY\_CRASH\_PENALTY = -0.2   
ALIVE\_BONUS\_PER\_TURN = 0.02

Gen 190/200... avg\_fitness: 1.21e+01

Gen 191/200... avg\_fitness: 1.28e+01

Gen 192/200... avg\_fitness: 1.20e+01

Gen 193/200... avg\_fitness: 1.17e+01

Gen 194/200... avg\_fitness: 1.21e+01

Gen 195/200... avg\_fitness: 1.08e+01

Gen 196/200... avg\_fitness: 1.10e+01

Gen 197/200... avg\_fitness: 1.22e+01

Gen 198/200... avg\_fitness: 1.19e+01

Gen 199/200... avg\_fitness: 1.23e+01

Gen 200/200... avg\_fitness: 1.24e+01

Game 1...won by SinglePerceptronGA (orange) with score=192 after 100 turns.

Game 2...won by SinglePerceptronGA (orange) with score=221 after 100 turns.

Game 3...won by SinglePerceptronGA (orange) with score=170 after 100 turns.

Game 4...won by SinglePerceptronGA (orange) with score=131 after 100 turns.

Game 5...won by SinglePerceptronGA (orange) with score=129 after 100 turns

# Test 5 – Aggressive Vs. Enemy

**GA configuration**

ELITISM\_COUNT = 2  
TOURNAMENT\_SIZE = 3  
CROSSOVER\_PROBABILITY = 0.7  
MUTATION\_PROBABILITY = 0.05  
MUTATION\_STANDARD\_DEVIATION = 0.10  
WEIGHT\_CLIP\_LIMIT = 3.0

**Fitness evaluation modifiers**

FOOD\_REWARD = 0.5  
FRIEND\_ATTACK\_PENALTY = -0.3  
ENEMY\_ATTACK\_REWARD = 0.3  
HEAD\_FRIEND\_CRASH\_PENALTY = -0.2  
HEAD\_ENEMY\_CRASH\_PENALTY = -0.2   
ALIVE\_BONUS\_PER\_TURN = 0.02

Gen 190/200... avg\_fitness: 1.21e+01

Gen 191/200... avg\_fitness: 1.28e+01

Gen 192/200... avg\_fitness: 1.20e+01

Gen 193/200... avg\_fitness: 1.17e+01

Gen 194/200... avg\_fitness: 1.21e+01

Gen 195/200... avg\_fitness: 1.08e+01

Gen 196/200... avg\_fitness: 1.10e+01

Gen 197/200... avg\_fitness: 1.22e+01

Gen 198/200... avg\_fitness: 1.19e+01

Gen 199/200... avg\_fitness: 1.23e+01

Gen 200/200... avg\_fitness: 1.24e+01

Game 1...won by SinglePerceptronGA (orange) with score=192 after 100 turns.

Game 2...won by SinglePerceptronGA (orange) with score=221 after 100 turns.

Game 3...won by SinglePerceptronGA (orange) with score=170 after 100 turns.

Game 4...won by SinglePerceptronGA (orange) with score=131 after 100 turns.

Game 5...won by SinglePerceptronGA (orange) with score=129 after 100 turns