

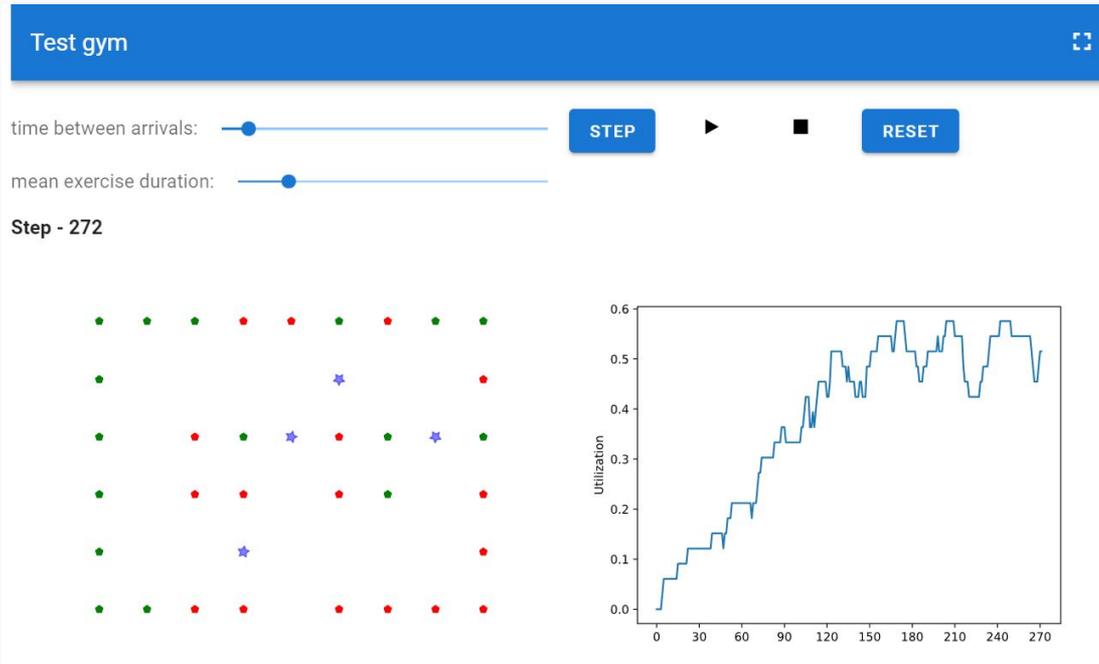
Simulation-driven gym layout optimization



Goal

- Find the optimal gym layout
- Evaluate layouts with agent-based simulation
- Optimize with genetic algorithm

Training environment



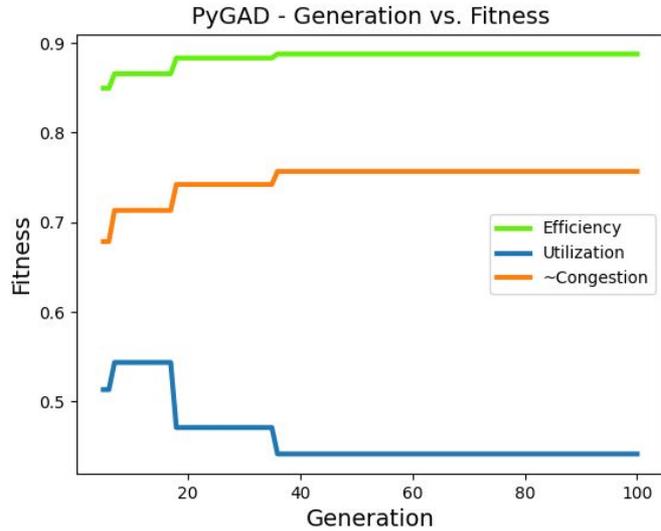
Model

- Discrete grid space
- Layout templates
- Agent goal: exhaust training checklist
- States searching, exercising

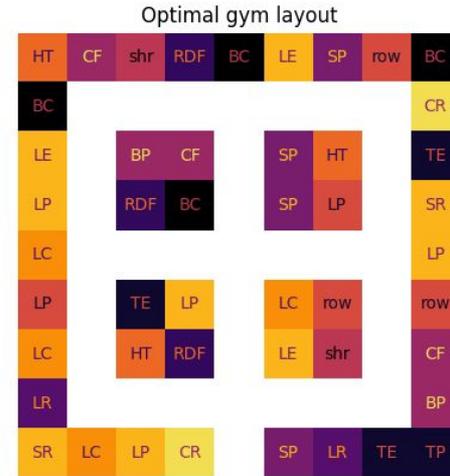
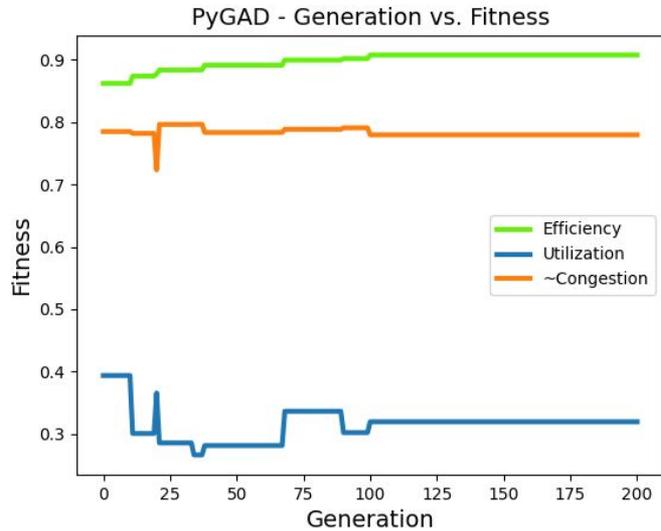
Optimization

- Objectives: efficiency, utilization, crowdedness
- Genetic algorithms
- Unroll template into chromosome, preserving structure
- Discard invalid layouts

First layout



Second layout



Video of running simulation