



Say 'Sul Sul' to SimSim



A Sims-Inspired Platform for Sandbox Game AI

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github.com/l Soros/simsim

Introducing the SimSim Framework

- ◆ Sandbox games are an interesting challenge for AI
- ◆ SimSim: simplified Sims focusing only on furniture placement in one room
- ◆ Goal is to find a diverse variety of viable rooms



```
#####  
#...g]..#  
#.....#  
#.....#  
#.....e#  
#.....#  
#.....#  
#.....#  
#####  
  
Key  
e : bed  
g : fridge  
l : toilet
```

Evaluating quality diversity algorithms

Iteration 0:

```
#####  
#..g]..#  
#.....#  
#.....#  
#.....e#  
#.....#  
#.....#  
#.....#  
#####
```

Key

```
e : bed  
g : fridge  
l : toilet
```

Iteration 0:

```
#####  
#.....#  
#..e.....#  
#.=g.....#  
#.....#  
#...].....#  
#.....#  
#.....#  
#####
```

Key

```
e : bed  
g : fridge  
= : table tennis  
l : toilet
```

Iteration 0:

```
#####  
#.g.l#  
#.T..#  
#.e..#  
#...#  
#####
```

Key

```
e : bed  
g : fridge  
T : hot tub  
l : toilet
```



Environment designed to test QD algorithms

We test novelty search, minimal criterion

novelty search, and a (1+1)-ES



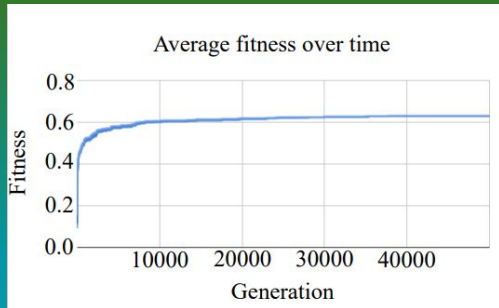
Both find optimal objects to place in house



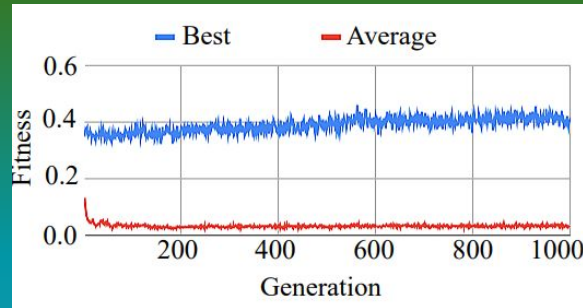
Novelty -> more object variability



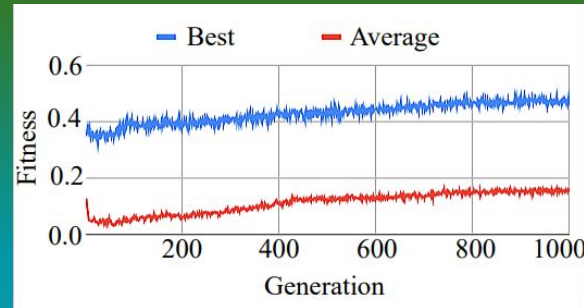
1+1 -> minimal placement



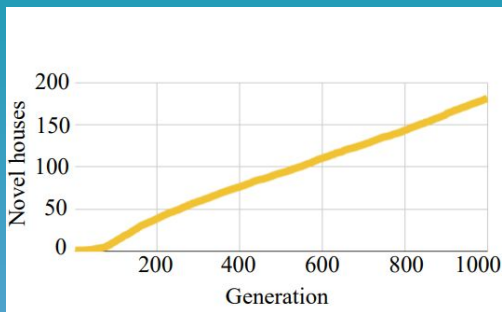
(1+1)-EA



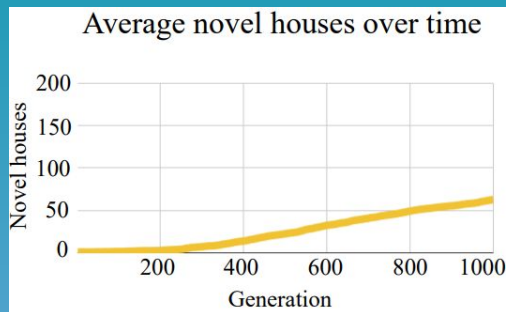
Pure novelty search



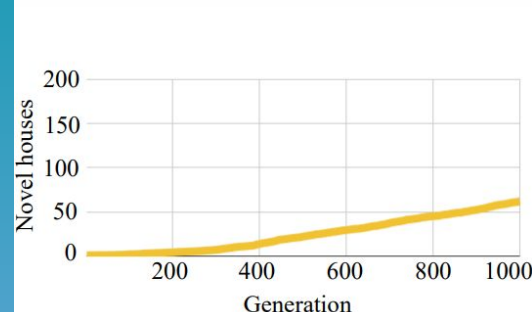
Minimal criterion
novelty search



No minimal criterion



MC = 0.1



MC = 0.2

Future Work

- ◆ Monetary constraints (buy items)
- ◆ Modify agent behavior
- ◆ Expansion of rooms and houses
- ◆ Expand possible object interactions

