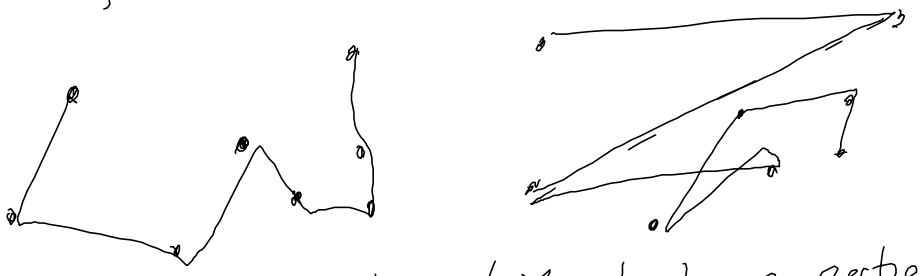
# Hill Climbing Search

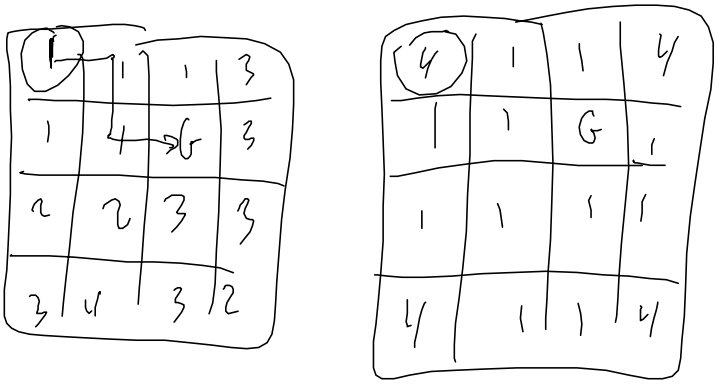
Monday, September 19, 2016 9:26 AM

state ✓
init ✓
goal ?
intuition that some states better than others

Traveling Sales Person



Search for the state w/ the best properties



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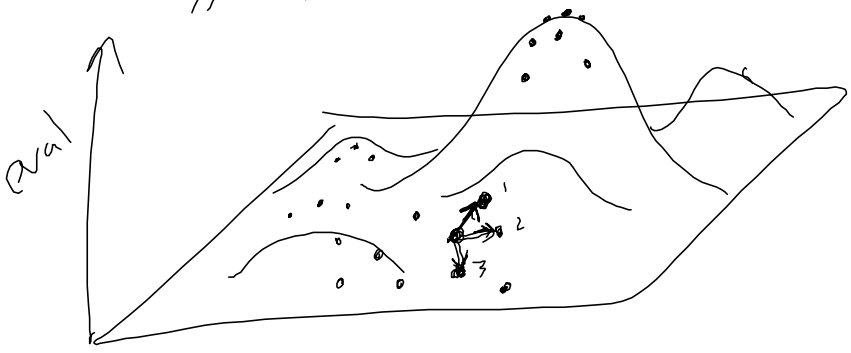
intuition
evaluation fn () = captures this intuition
- bigger the # the better the state

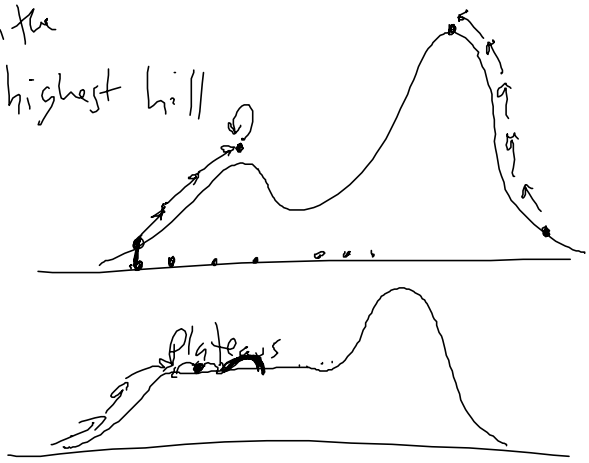



Blind Hill Climbing
- start w/ a random state

- Start with a [illegible]
- Generate K successors
- Sort successors by eval fn
- Move to best successor
- Repeat

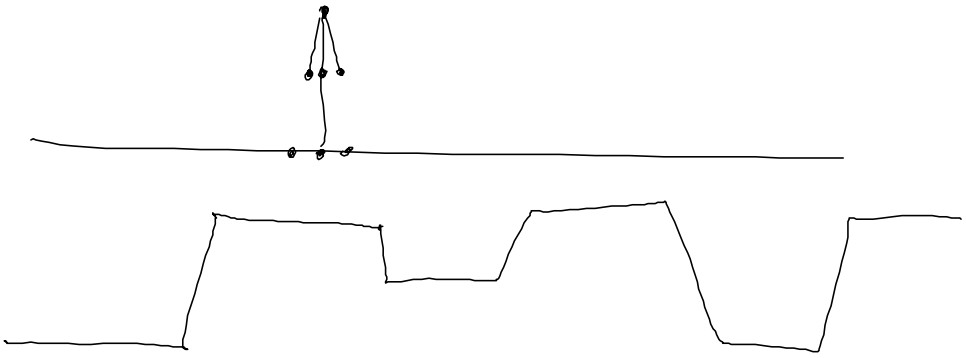
Problems:

- you might not be on the highest hill
- local maxima
- plateaus - ∞ loops
- No open or closed




Fixes!

- Random bad moves (down-hill moves)
- Multiple restarts (keep multiple states)
- Gradient measure
- Keep history (beam search for limited open list)



Genetic Algorithms (Game AI) 4731

Simulated Annealing

~~Successors~~ Neighborhood