

Loss Mountain

Walk the robot downhill in the fog. That's how AI learns.

OBJECTIVE

The robot is on a hill in the fog. Height is how wrong a model is, so the lowest point is the best answer. The robot can only feel the slope under its feet. Pick a step size, step downhill, and find the bottom before you run out of steps. Five hills. The last one is a real model's error.

PLAY FREE AT [HIBOT.SPACE/GAMES/LOSS-MOUNTAIN/PLAY](https://hibot.space/games/loss-mountain/play)

- 1 The arrow under the robot points downhill. Press Step to take one step that way, or 10 steps to take ten.
- 2 The step size slider sets how far each step goes. Each hill has a step budget.
- 3 When the run ends, the fog lifts and you see the whole hill, your path, and the real bottom.
- 4 Hill 3 has a Try another start button. Hill 4 has a Momentum switch.

WHAT THE MOUNTAIN TEACHES

- 1 Training an AI means lowering its error. Picture every setting of its weights as a map, and the error as the height.
- 2 The model can't see the whole map. It feels the slope where it is and steps downhill. This is called gradient descent.
- 3 Step size is the learning rate: too small is slow, too big overshoots.
- 4 You can get stuck in a valley that isn't the deepest. Momentum and fresh starts help.

THE FIVE HILLS (ANSWER KEY)

- 1 The bowl. From the start: notches 4-9 reach the bottom; notches 1-3 run out of steps; notch 10 flies off.
- 2 The narrow valley. From the start: notches 5-8 reach the bottom; notches 1-4 run out of steps; notches 9-10 fly off.
- 3 Two valleys. Start 1: no step size finds the deep valley. Start 2: no step size finds the deep valley. Start 3: notches 6-10 find the deep valley.
- 4 The plateau. Without momentum: notches 1-6 get stuck; notches 7-10 run out of steps. With momentum: notches 5-6 and 9 reach the bottom; notches 1-3 get stuck; notch 4 runs out of steps; notches 7-8 and 10 fly off.
- 5 A real hill. From the start: notches 3-8 reach the bottom; notches 1-2 run out of steps; notches 9-10 fly off.

NO SCREENS? PLAY IT UNPLUGGED

- 1 No screens? Build a pillow mountain under a blanket. One player is blindfolded and may only feel the slope under one hand.
- 2 Before each move, a teammate calls a step size: one hand-width, two, or four. Count how many moves it takes to reach the lowest spot.
- 3 Try it again with two dips in the blanket. Did the blindfolded player find the deeper one?