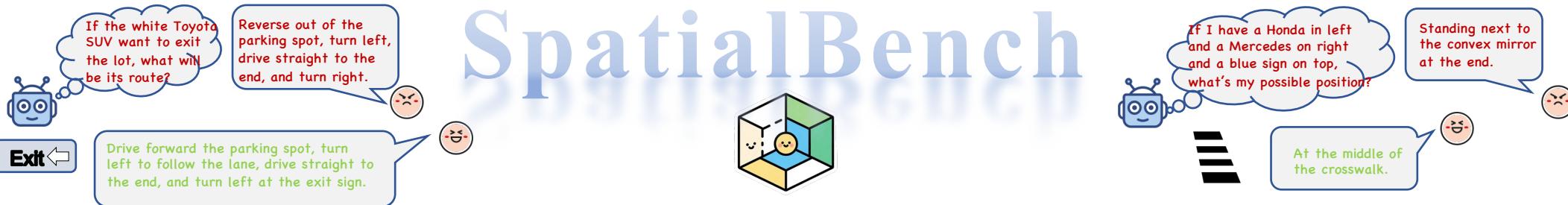




SpatialBench



Cognition Level

Level 1

Observation

Count

How many chairs are next to the table?

Size

What's the length in centimeters of the grey PC case?

Room Size

What's the size of the room in square meters?

Level 2

Topology and Relation

Order

What will be the first-time appearance order?

Order (Self-Def Route)

Anti-clockwise, what will the appearance order from the door?

Rel. Distance

Which of these objects (windows, a cardboard box, doors, a chair) is closest to the monitor?

Relative Direction

If a robot is on the top of the monitor, facing the mouse, which direction should the chair from it?

Relative Count

Which of the following objects has the most quantity?

Level 3

Symbolic Reasoning

Multi-Hop Reasoning

If the black car is the first car, what will be the third car on the left hand side of the route?

Affordance

What's the color of the object that can direct vehicles?

Landmark Constrained Localization

If a robot get a red car on its left and a white Volvo on its right, which position is it?

Level 4

Causality

Causal Reasoning

If the Tesla suddenly accelerates, which event is most likely to happen? For example, objects behind the vehicle may quickly disappear from view, while nearby vehicles or pedestrians might appear to move backward relative to the car's frame of reference.

Level 5

Planning

Visual Based Commands

If the blue sign shows the way going out the parking lot, how can the grey Volkswagen get out of the lot?

Route Plan

The route to the bottom of the red car will be: " Go straight, [please fill in], facing the red car, go straight, arrival."