

CEBench

Single-arm manipulation (Sim)

Static Environment



Env A

Env B



Env C

Env D

Instruction



Pick up the blue block and rotate it.

Proprioception



$$\Delta T = [-0.9, 0.3, 0.1]$$

$$\Delta R = [9^\circ, 12^\circ, 3^\circ]$$

$$\Delta Gripper$$

Bimanual-arm manipulation (Sim)

Seen



lift pot

place bottles

Domain Randomization



place dual shoes

click bell

Bimanual mobile manipulation (Real)

Seen



seen object &
background &
positions

Domain Randomization



unseen objects
& distractors

unseen
background

unseen
spatial position

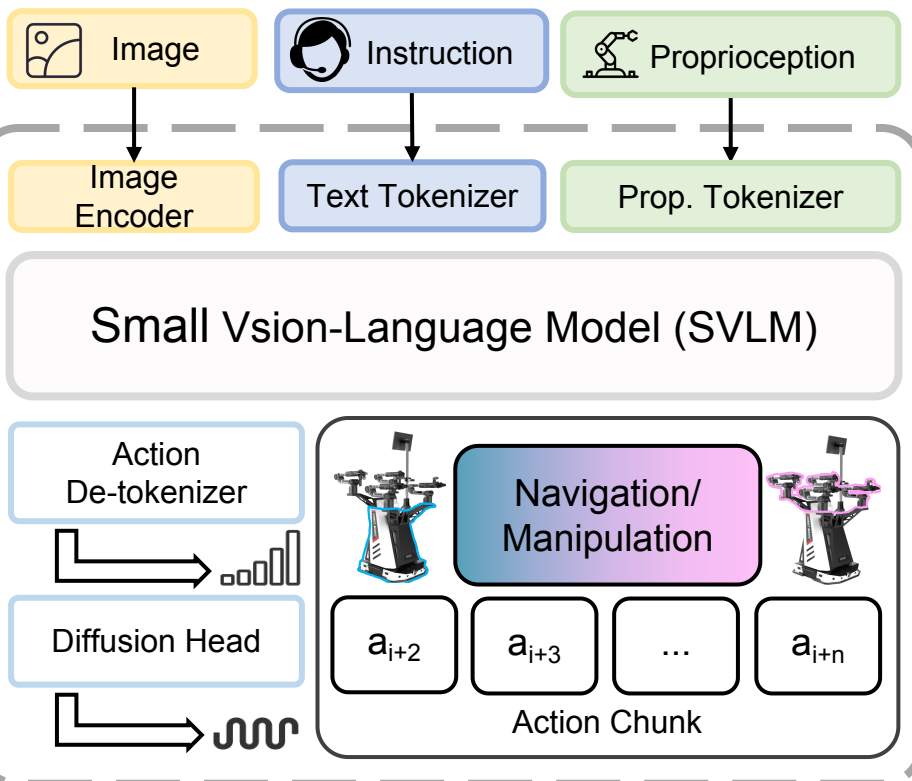
Research Focus

Q1: To what extent does model performance depend on parameter scale, and which techniques enable small models to achieve comparable performance to their larger counterparts?

Q2: Is pre-training necessary for small models to accomplish tasks in specific scenarios?

Q3: How to define a hybrid action space for cross-embodiment manipulation, including fixed-base and mobile ones?

Framework of LightVLA



Training Pipeline

