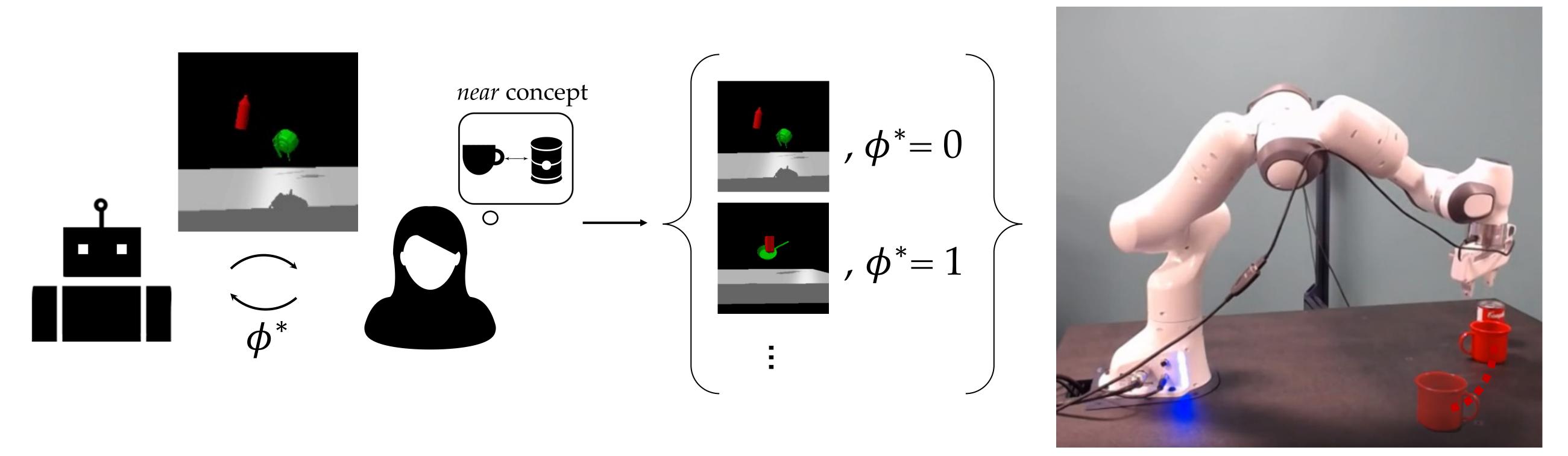
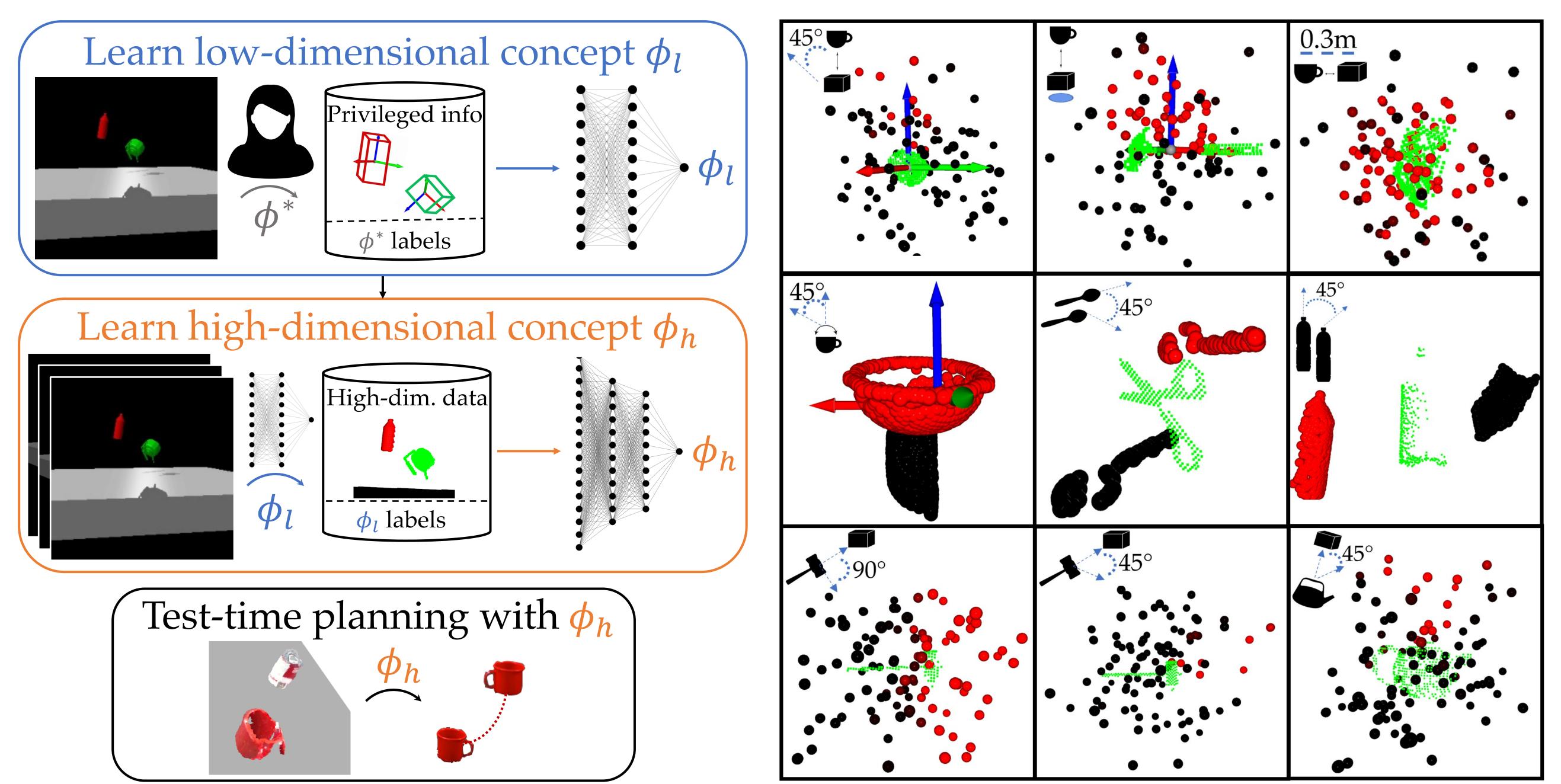


Problem Statement: How can a user efficiently teach the robot a high-dimensional perceptual concept ϕ_h (e.g. *near*, *upright*, *etc*.) useful for motion planning tasks?



Key Idea: To use human input most effectively, the robot should learn the concept on the low-dimensional privileged space, then treat that concept as a labeler.

Perceptual Concept Bootstrapping

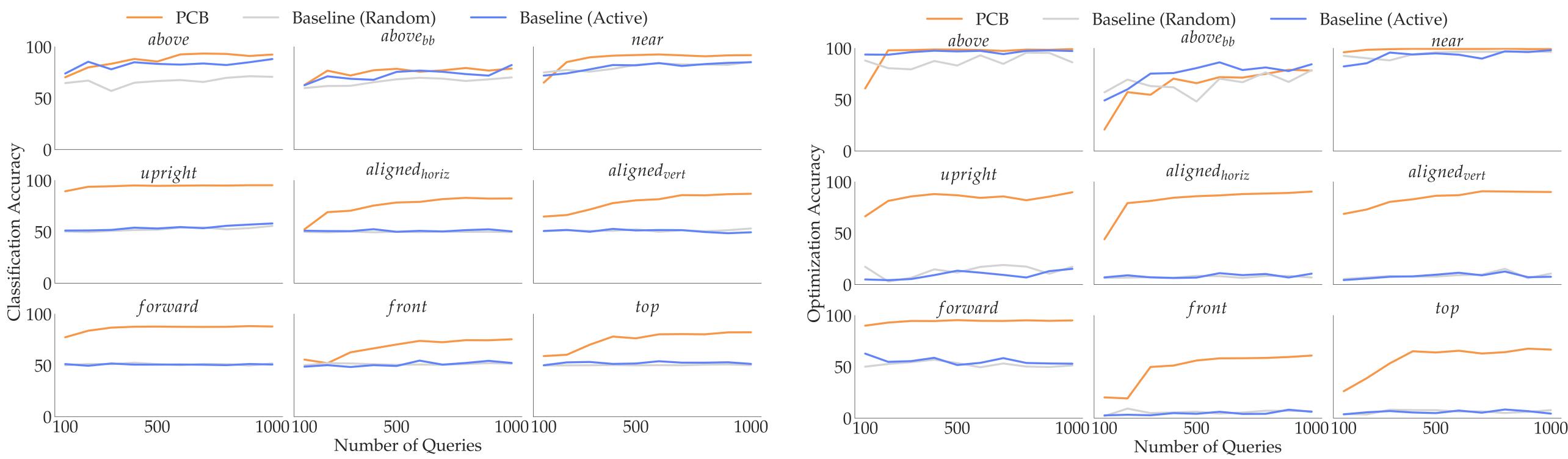


Berkeley Learning Perceptual Concepts by Bootstrapping from Human Queries 🧆 nuida. Andreea Bobu, Chris Paxton, Wei Yang, Balakumar Sundaralingam, Yu-Wei Chao, Maya Cakmak, Dieter Fox

Qualitative Examples with ϕ_h

above	above _{bb}	near	upright	aligned _{horiz}	alignedvert	forward	front	top
				Contraction of the second seco		And		
							in a second seco	
		- A Contraction of the second						
						winning to		

Quantitative Results



PCB learns better concepts than a baseline that learns directly from the high-dimensional queries (passive or active), especially when the concepts involve object affordances.