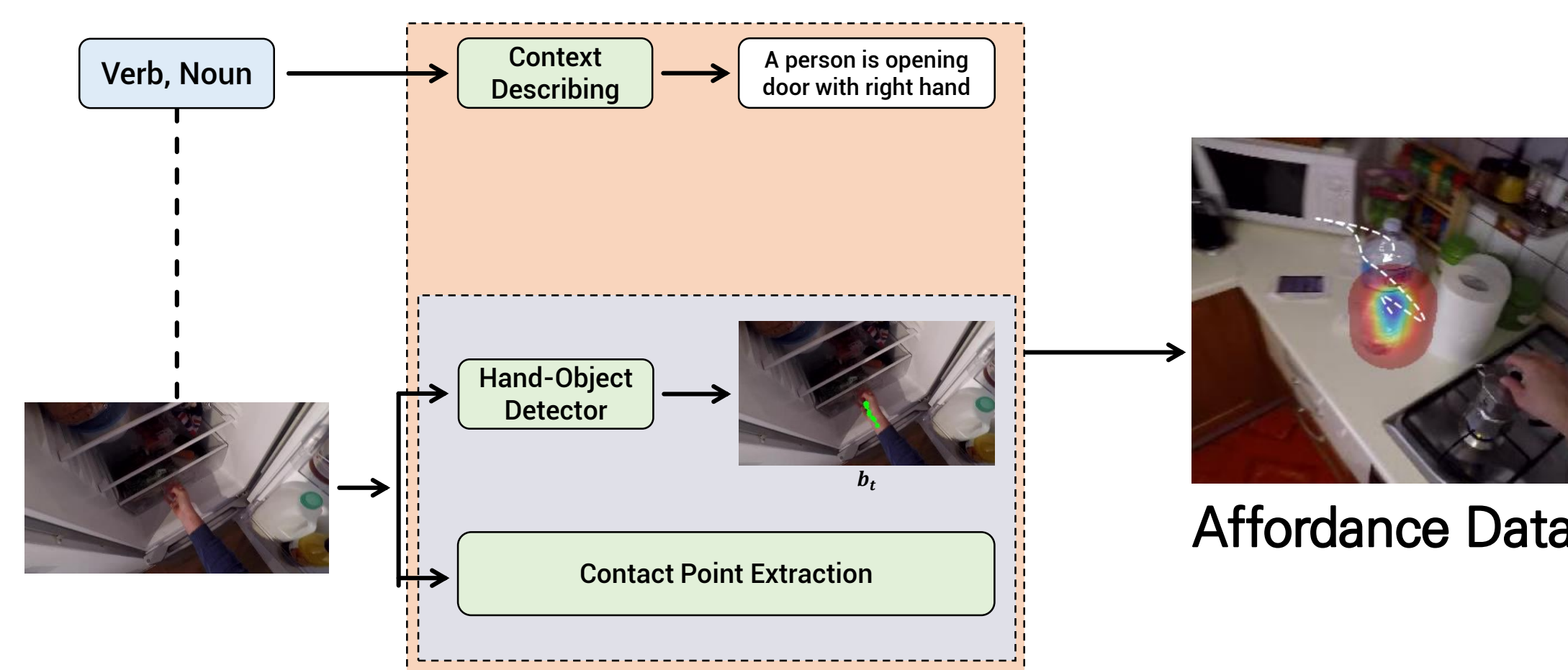
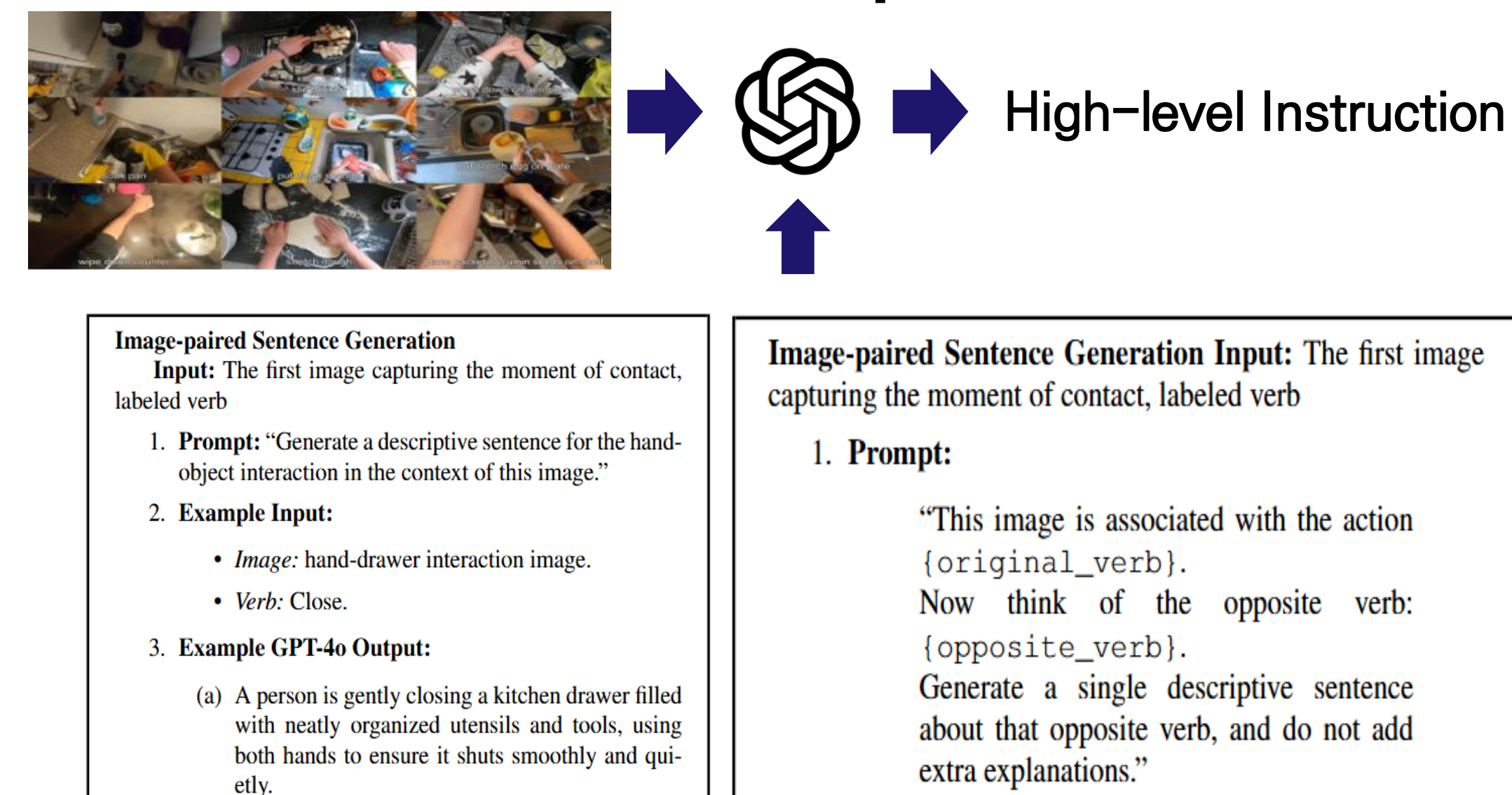


## Affordance Data Collection from Wild Human Egocentric Online Data

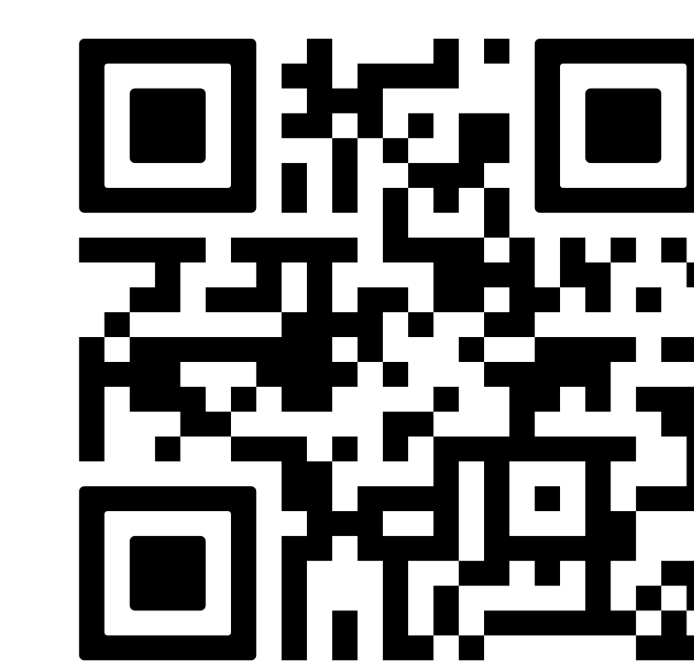
### Human-Object Interaction Data



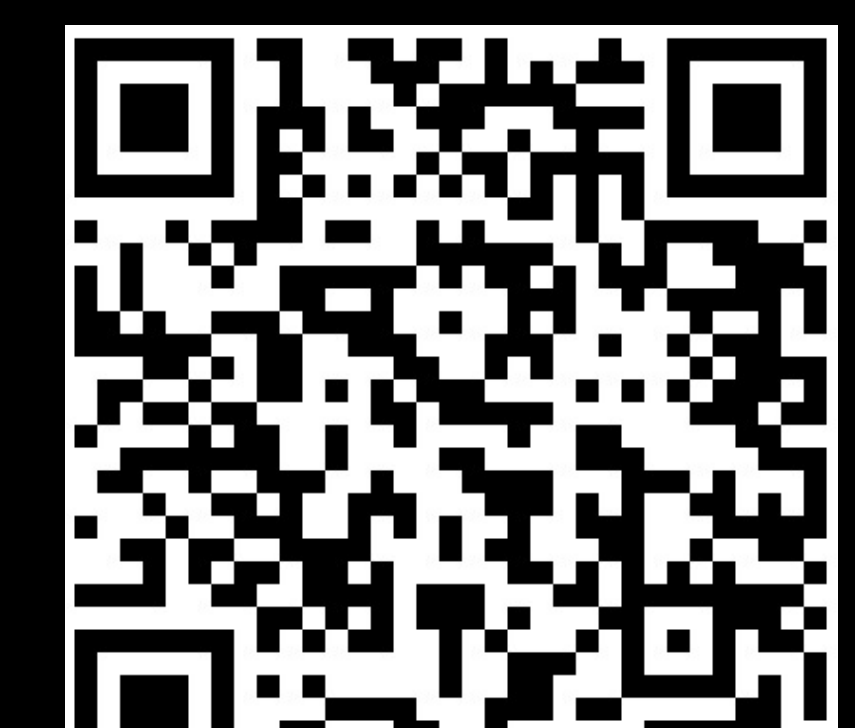
## Contextual Description Process



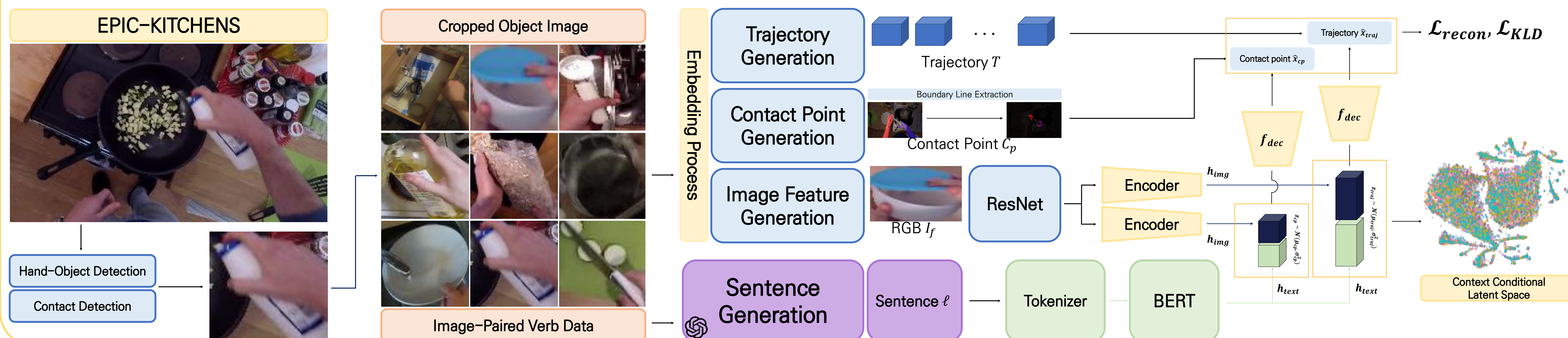
Lab page



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## Contextual 2-D Affordance Learning Process

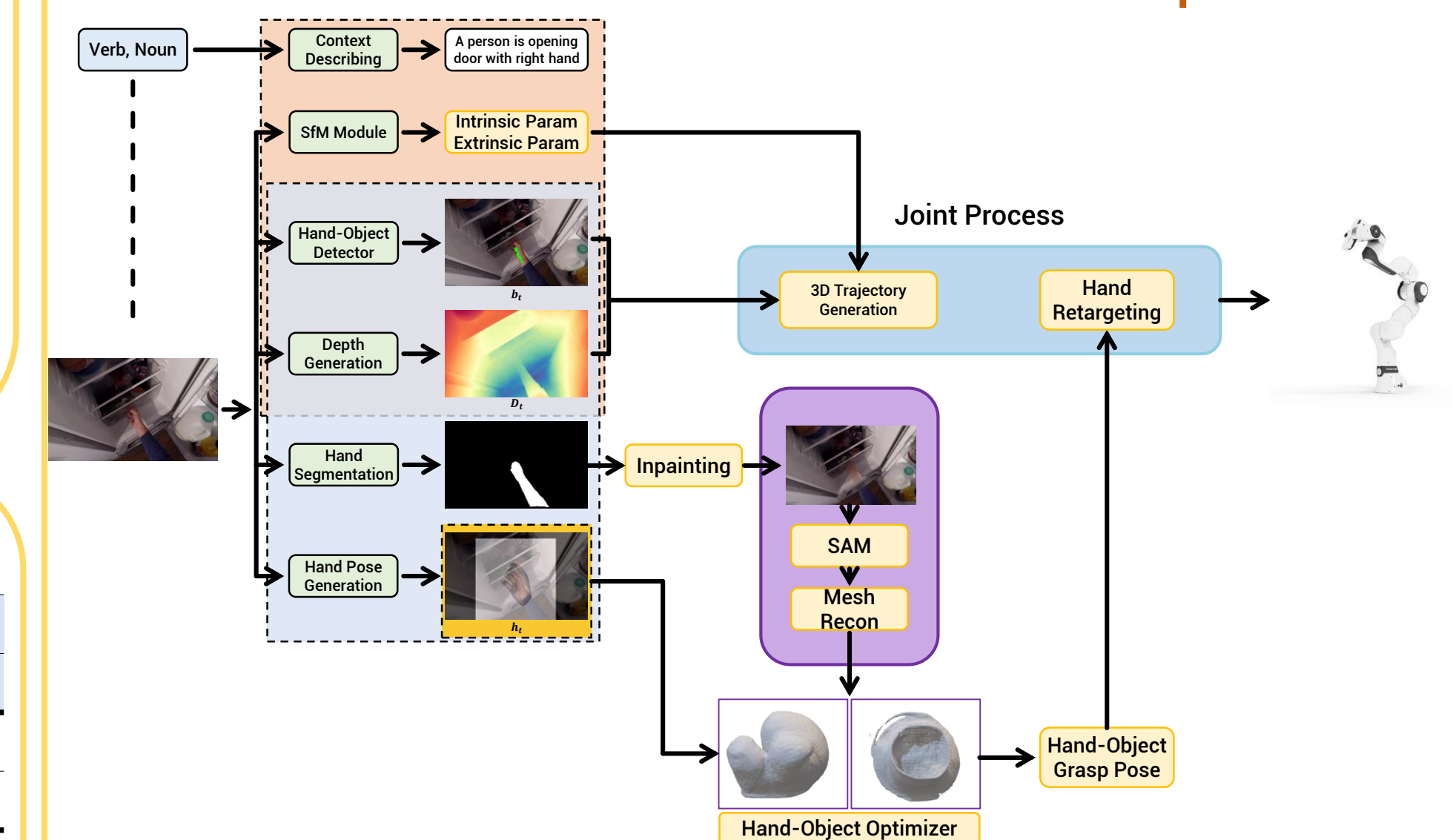


## Discussion

- Our CVAE-based affordance learning method effectively incorporates context awareness.
- Some constraints still remain for robotic manipulation tasks.
- Our model outperforms the baseline in evaluation.
- We also explore an LLM-based approach for affordance generation.

## Future Works

### : 3D Affordance-based Robotic Manipulation



## Inference Process & Results



"In the image, a person's hands are engaging in the action of **putting down** a transparent plastic **bottle** onto a kitchen counter"

"She **opens** the oven **door** to check if the pastries are baked to perfection."

"A person is **stirring** a pot of **liquid** on a stove using a blue silicone spatula, likely involved in cooking or preparing a recipe."

"A person is carefully **closing** the oven **door** with their hands protected by oven mitts, after placing a tray of baked goods inside."

Method	Evaluation Metrics					
	SIM	NSS	AUC-J	ADE	FDE	DTW
VRB	0.16	0.12	0.55	1.06	1.61	12.97
VRB+CVAE	0.13	0.12	0.55	0.24	0.47	15.75
CAG	0.20	0.52	0.65	0.24	0.48	16.15

Method	Evaluation Metrics					
	SIM	NSS	AUC-J	ADE	FDE	DTW
Verb	0.16	0.32	0.61	1.00	2.24	72.32
Verb+Noun	0.19	0.42	0.63	1.00	2.23	71.99
Verb	0.15	0.26	0.59	0.97	0.15	1.71
Oven+Noun	0.19	0.46	0.63	0.07	0.14	7.28
CAG	0.20	0.52	0.65	0.24	0.48	16.15

