

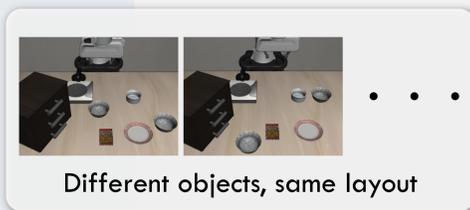


## Procedural Generation

Crowd-source Human Activities



LIBERO-Object



LIBERO-Spatial

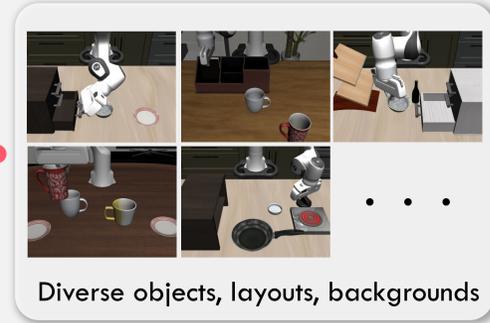
## LIBERO Task Suites



LIBERO-Goal



LIBERO-100



- Involve declarative knowledge
- Involve procedural knowledge



130 vision-based tasks



6,500 expert demonstrations

```
On(white_mug, init_region_1)
On(cabinet, init_region_2)
Open(cabinet_top_drawer)
```

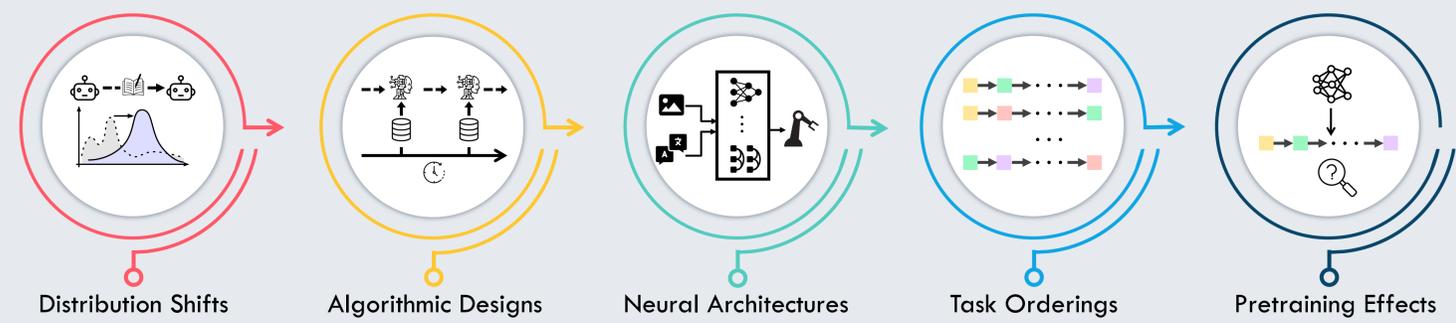
Specify Init Configuration

```
On(white_mug, cabinet_top_side)
and
Close(cabinet_top_drawer)
```

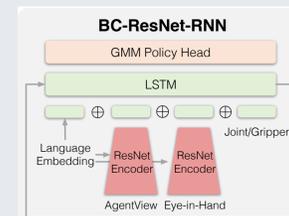
Specify Task Goals

PDDL Definition File

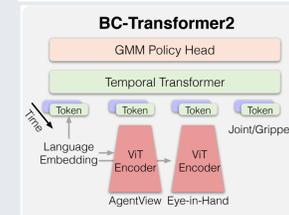
## Five Research Topics



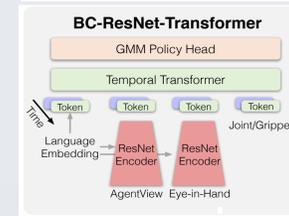
## Neural Architectures



ResNet + RNN

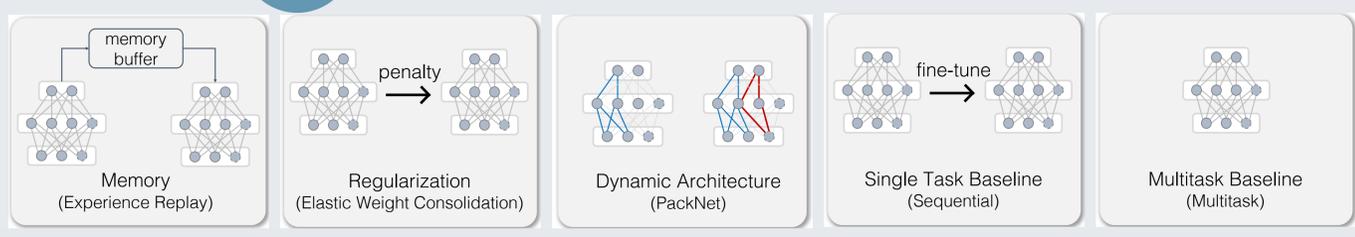


ResNet + Transformer



ViT + Transformer

## Implemented Lifelong Algorithms



## Results

The tested lifelong algorithms are overall good at backward transfer, but not at forward transfer, while sequential baseline vice versa.

Vision transformers are better at declarative knowledge, while convolution networks are better at processing procedural knowledge.

Simple language instructions of task goals would only function as bags of words, degenerating to the case of using task ids.