Multi-modal Robotic Perception with VIMA

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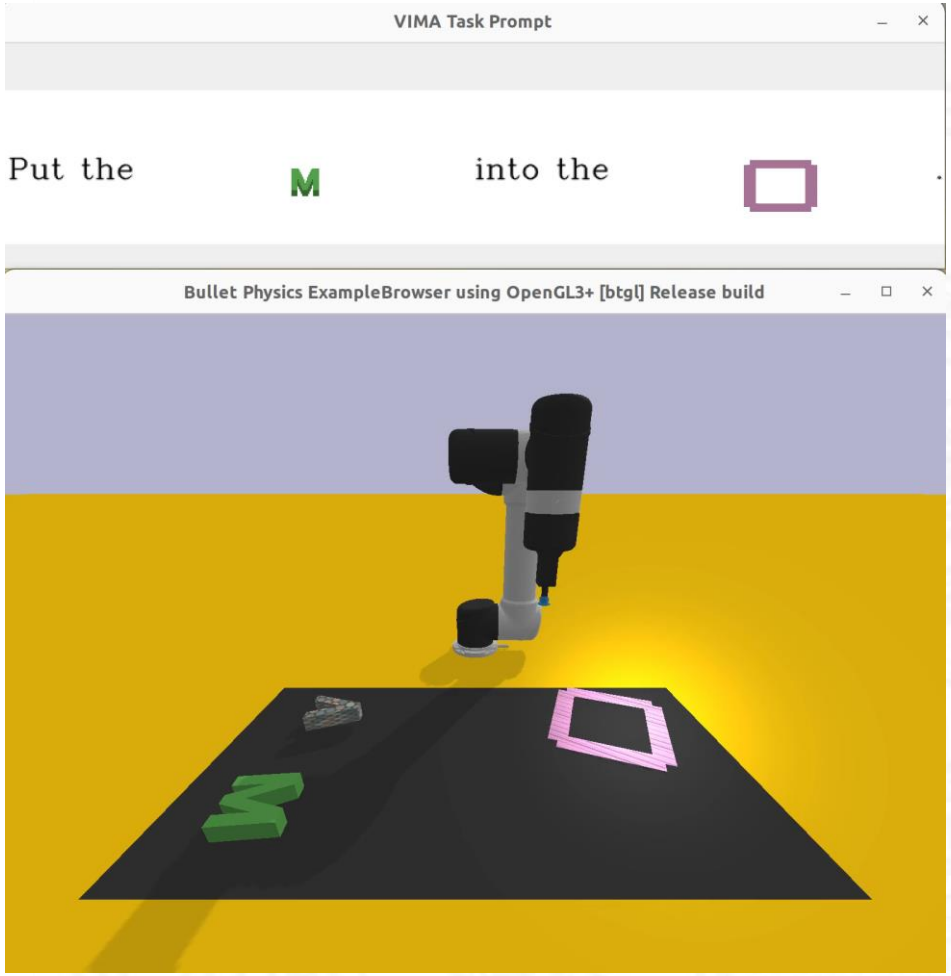
VIMA: General Robot Manipulation with Multimodal Prompts



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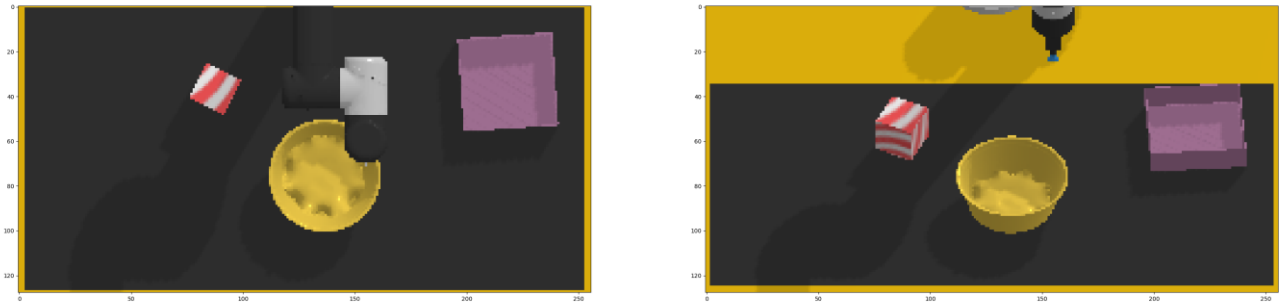
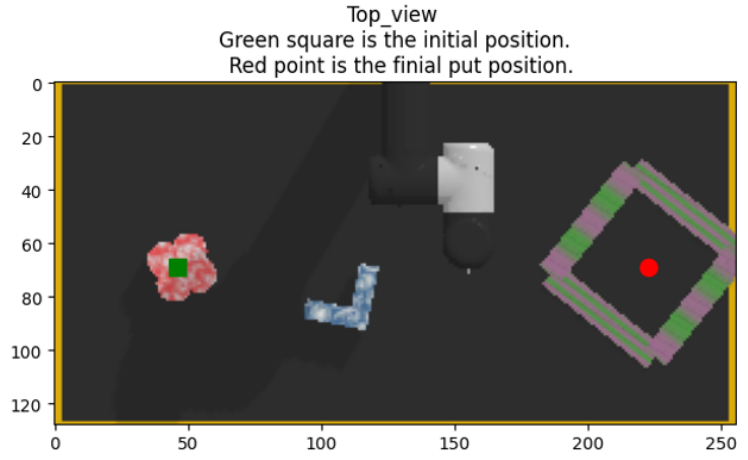
- Input and output

Input1: multi-modal input



Input2: top view and front view images



Model output: (Variables:
actions[“pose0_position”],
actions[“pose1_position”])
For initial position [0.50, 0.20]
For final put position [0.5, 0.90]

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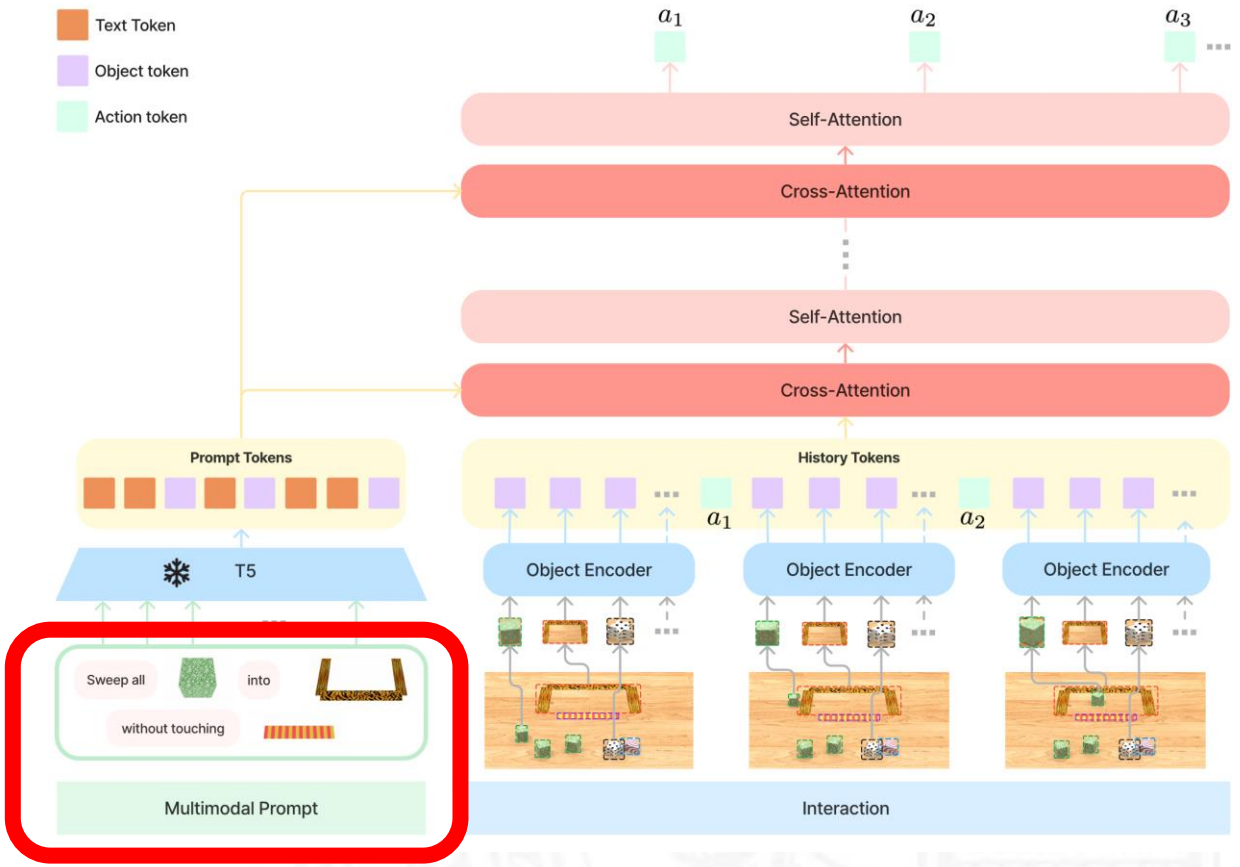
Prompt example:
'Put the {dragged_obj_1} into the {base_obj}.'
Prompt_assets example: Dict

```
prompt = env.prompt
prompt_assets = env.prompt_assets
```

- 'base_obj'
  - 'rgb'
    - 'front': shape(128*256)
    - 'top'
  - 'segm'
    - 'front': shape(128*256)
    - 'top'
    - 'obj_info'
- 'dragged_obj_1': ...



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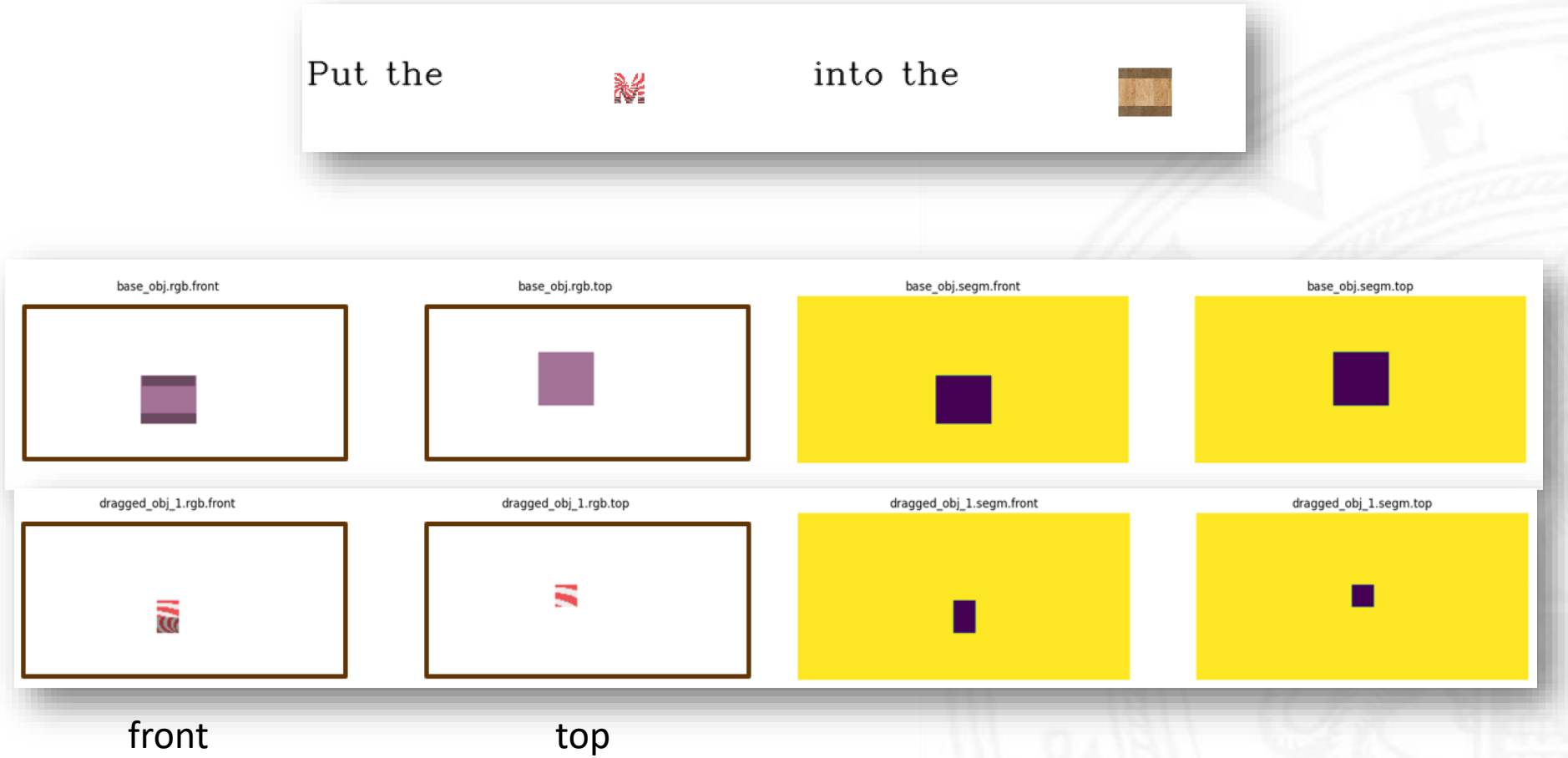

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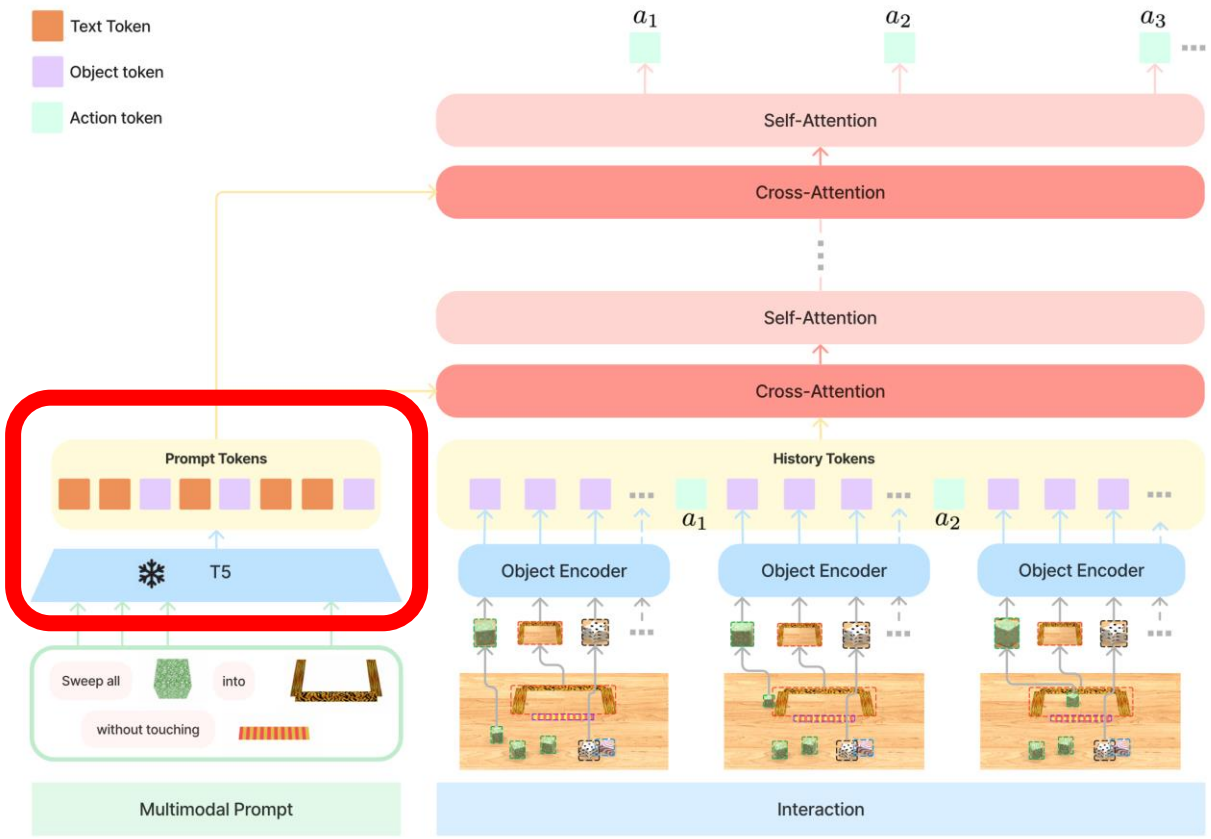

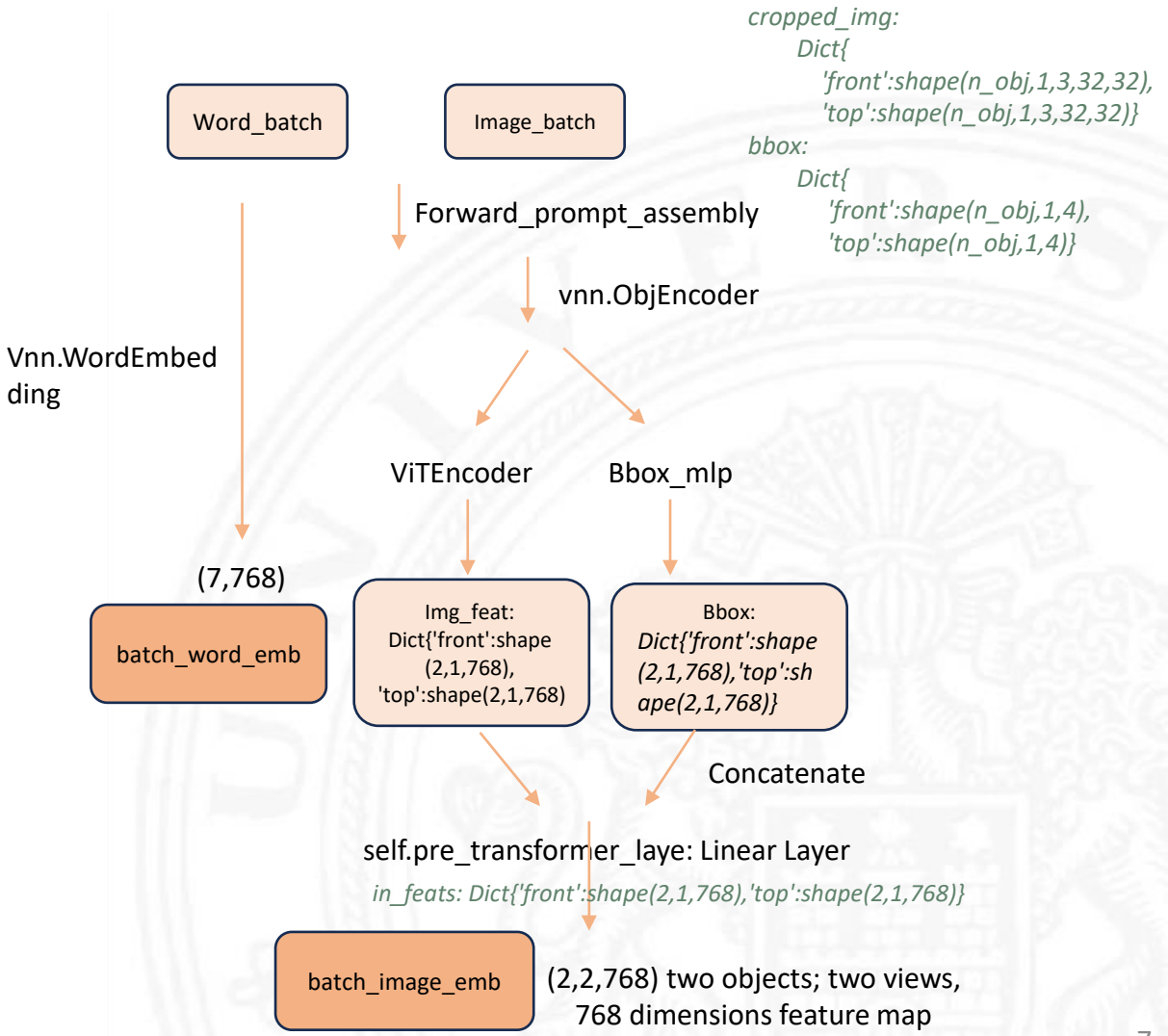

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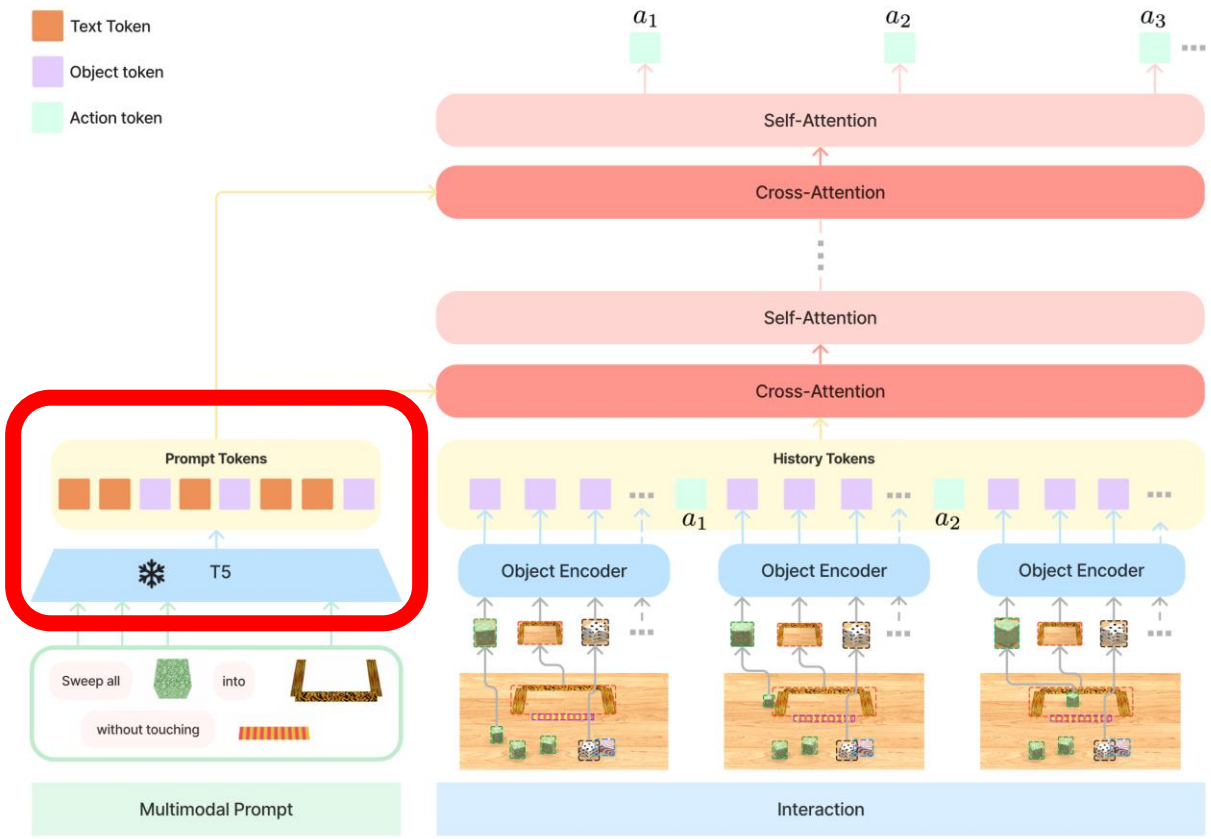

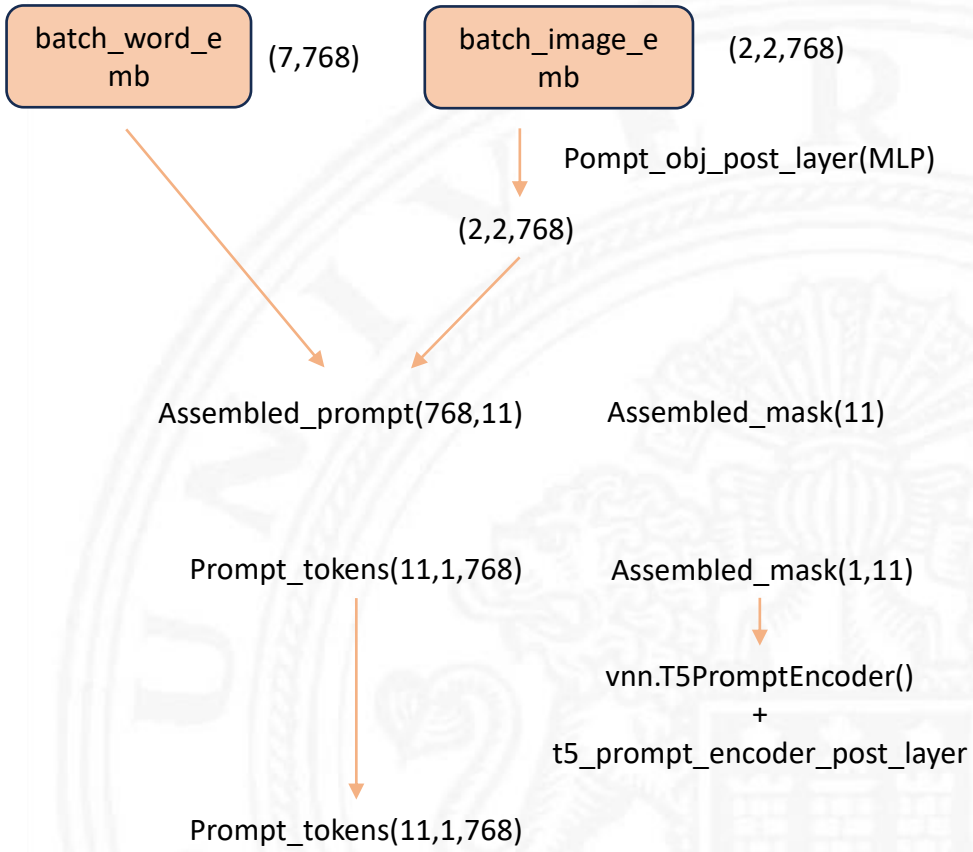

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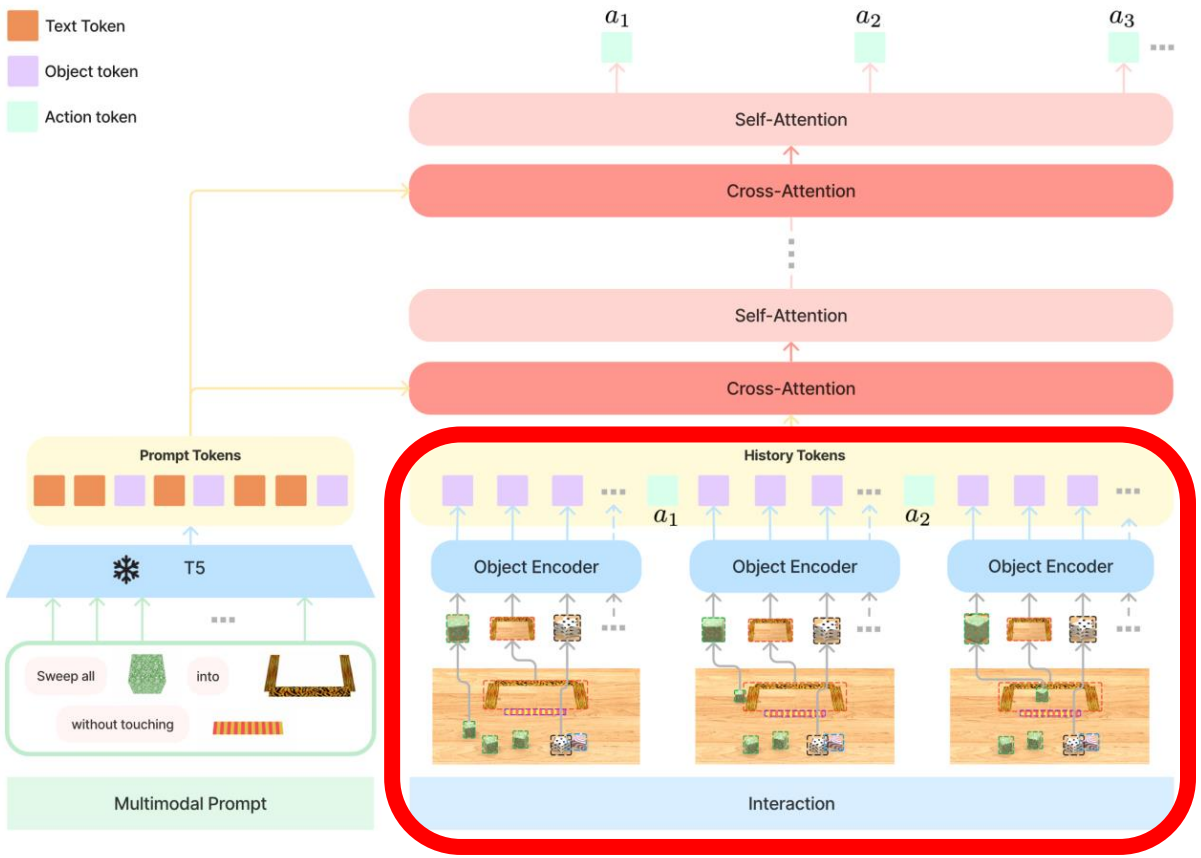

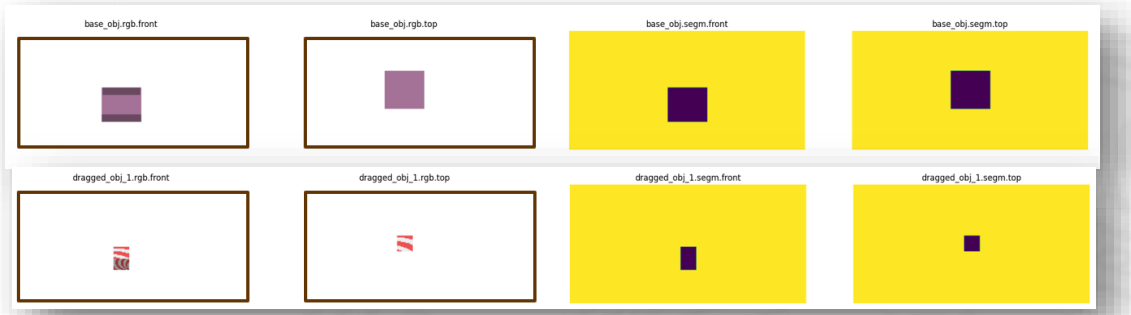

- Object encoder:
  - Cropped_img: ViT
  - Bbox: MLP
  - Fusion layers: MLP

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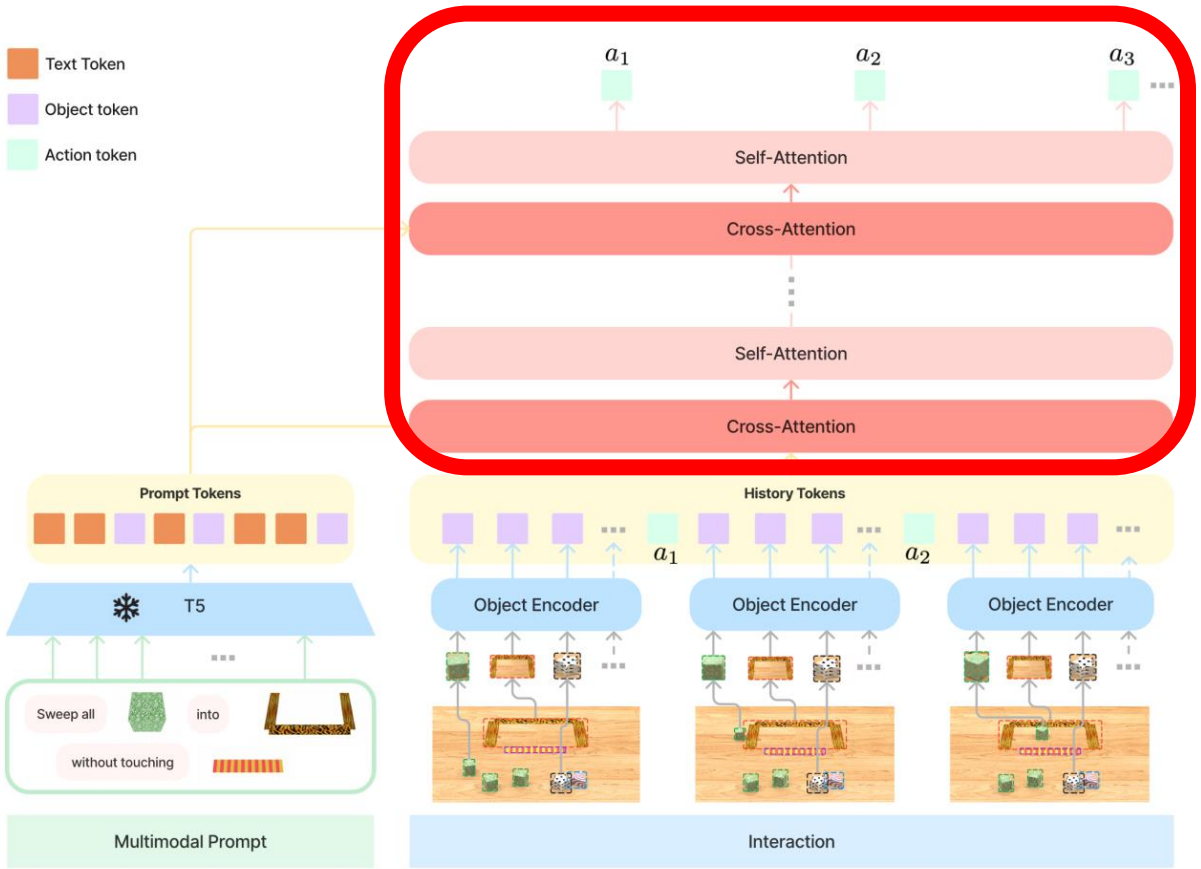

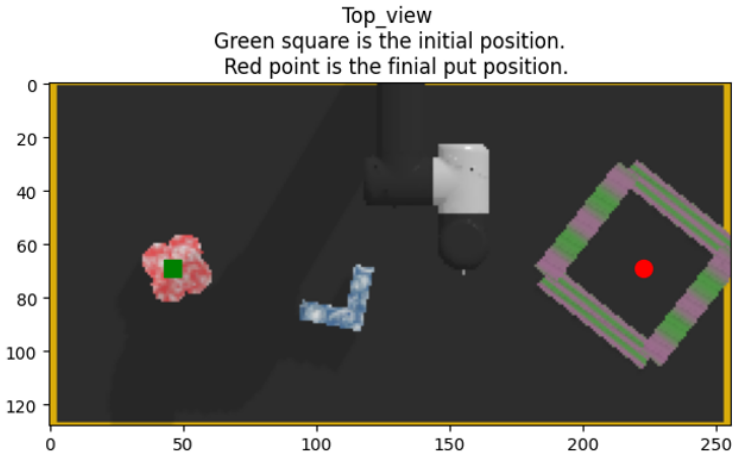

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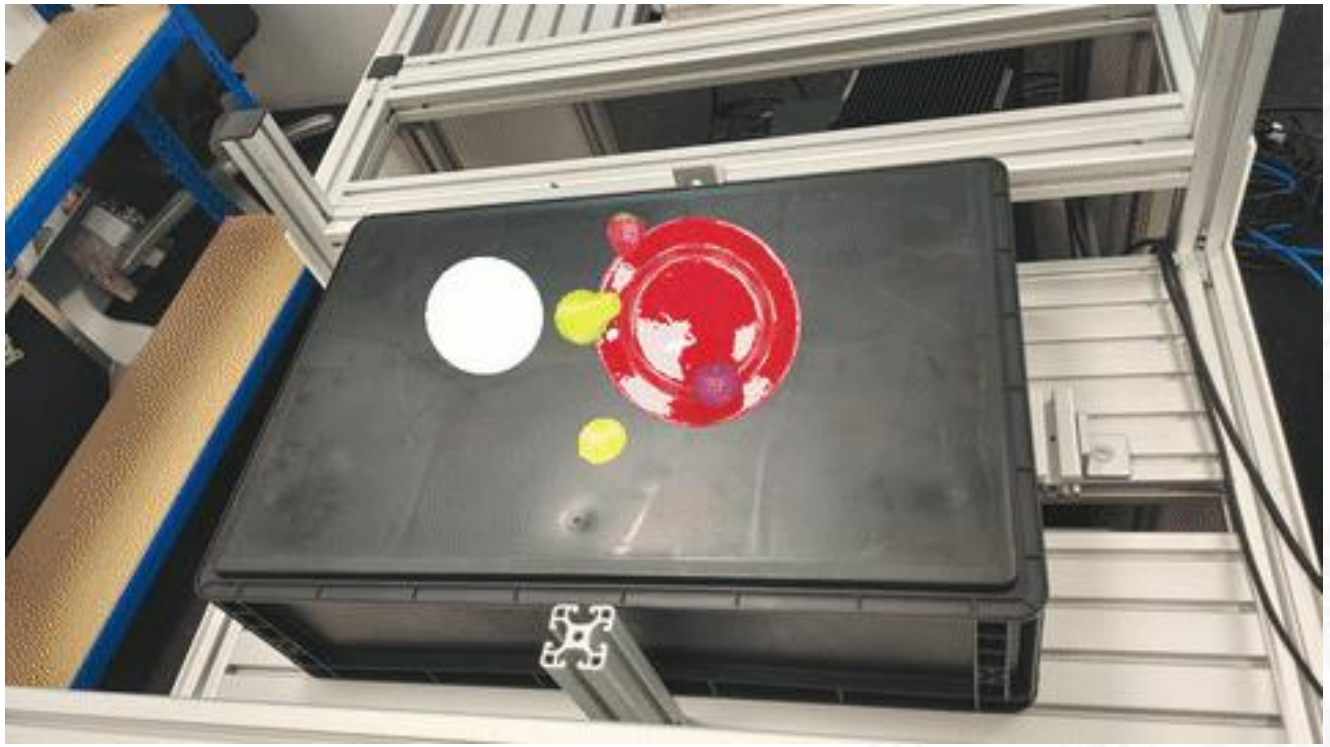

Thanks!