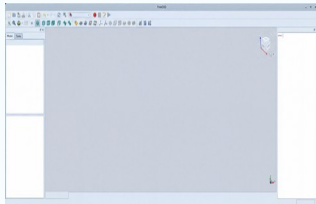


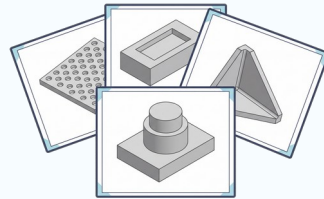
Broad Recursive Self-exploration

Environment: FreeCAD modeling and verification

FreeCAD



Workpieces



Actor



Verifier

Curriculum Agent

Round-2



Experience Summary

- Pass-fail outcomes
- Verifier feedback

Tasks Group A
Bracket/holes/fillet



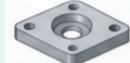
Experience Memory A

Tasks Group B
Slot/gusset/radii



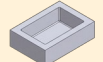
Experience Memory B

Tasks Group C
Counterbored flange



Experience Memory C

Tasks Group D
Pockets



Experience Memory D

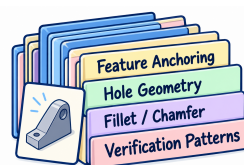
Tasks Group E
Chamfers



Experience Memory E

Progressively Refined Memory

Broad Experience Memory Bank



Targeted Experience Memory Bank



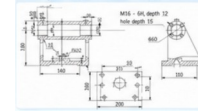
Frozen Memory

Deep Recursive Self-exploration

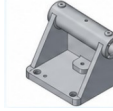
Target Task

Recreate a support bracket in FreeCAD

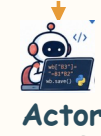
drawing.pdf



reference.jpg



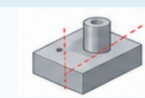
Round-1: Anchor a pin



```
Python
Part.makeCylinder(
5, 18)
pin.translate(v)
doc.recompute()
```

Run

FreeCAD



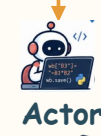
✗ Anchor mismatch

Memory A

Focus on alignment

Reuse memory for next round

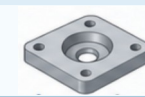
Round-2: Align a hole



```
Python
hole.translate(
Vector(x,y,0))
base.cut(hole)
doc.recompute()
```

Run

FreeCAD



✓ Alignment verified

Memory B

Add support geometry

Reuse memory for next round

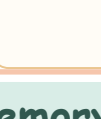
Round-3: Add a support rib



```
Python
rib.extrude(
Vector(0,t,0))
body.fuse(rib)
doc.recompute()
```

Run

FreeCAD

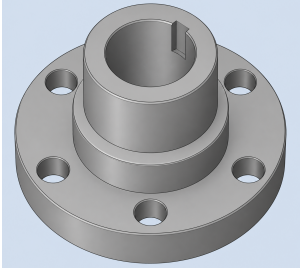


✓ Geometry verified

Memory C

Test-time Memory Reuse

FreeCAD 1.0

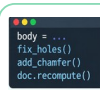


Export Successfully

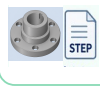
Memory guided Working



Retrieve memory



Apply code fixes



Build CAD + export STEP



Verify success

- ✓ Interpret Drawing
- ✓ Anchor Dimensions
- ✓ Offset Material Probe

