Tasks

2023年11月17日 19:09

TASK 1

Python 3.7.12 on linux

1. Torch 1.13.1

```
>>> import torch
>>> torch.cuda.is_available()
True
>>> exit()
```

2. Some errors. It's mostly related to the apex version, but checking the code shows that the apex doesn't work.

```
(ntu) liyifan@omnisky-N-A:~/Santiago/NTU/ViT-pytorch-main$                    python3 train.py --name 1
Traceback (most recent call last):
  File "train.py", line 17, in <module>
    from apex import amp
ModuleNotFoundError: No module named 'apex'
(ntu) liyifan@omnisky-N-A:~/Santiago/NTU/ViT-pytorch-main$ pip install apex
Collecting apex
  Downloading apex-0.9.10dev.tar.gz (36 kB)

(ntu) liyifan@omnisky-N-A:~/Santiago/NTU/ViT-pytorch-main$ python3 train.py --name 1
Traceback (most recent call last):
  File "train.py", line 17, in <module>
    from apex import amp
  File "/media/omnisky/sdb/grade2020/liyifan/anaconda3/envs/ntu/lib/python3.7/site-packages/apex/__init__.py", line 13, in <module>
    from pyramid.session import UnencryptedCookieSessionFactoryConfig
ImportError: cannot import name 'UnencryptedCookieSessionFactoryConfig' from 'pyramid.session' (unknown location)
```

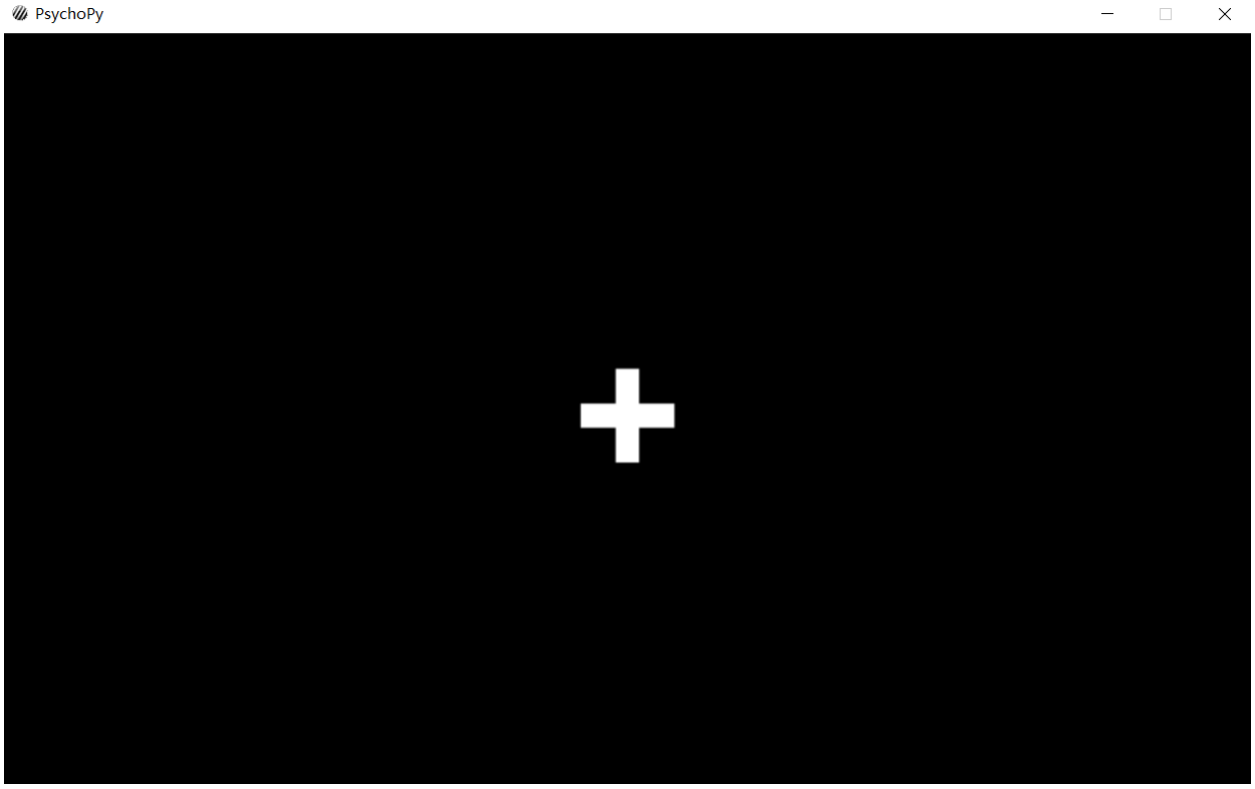
3. Training, with a maximum accuracy of 98.4% on the test set, using the model ViT-B_32

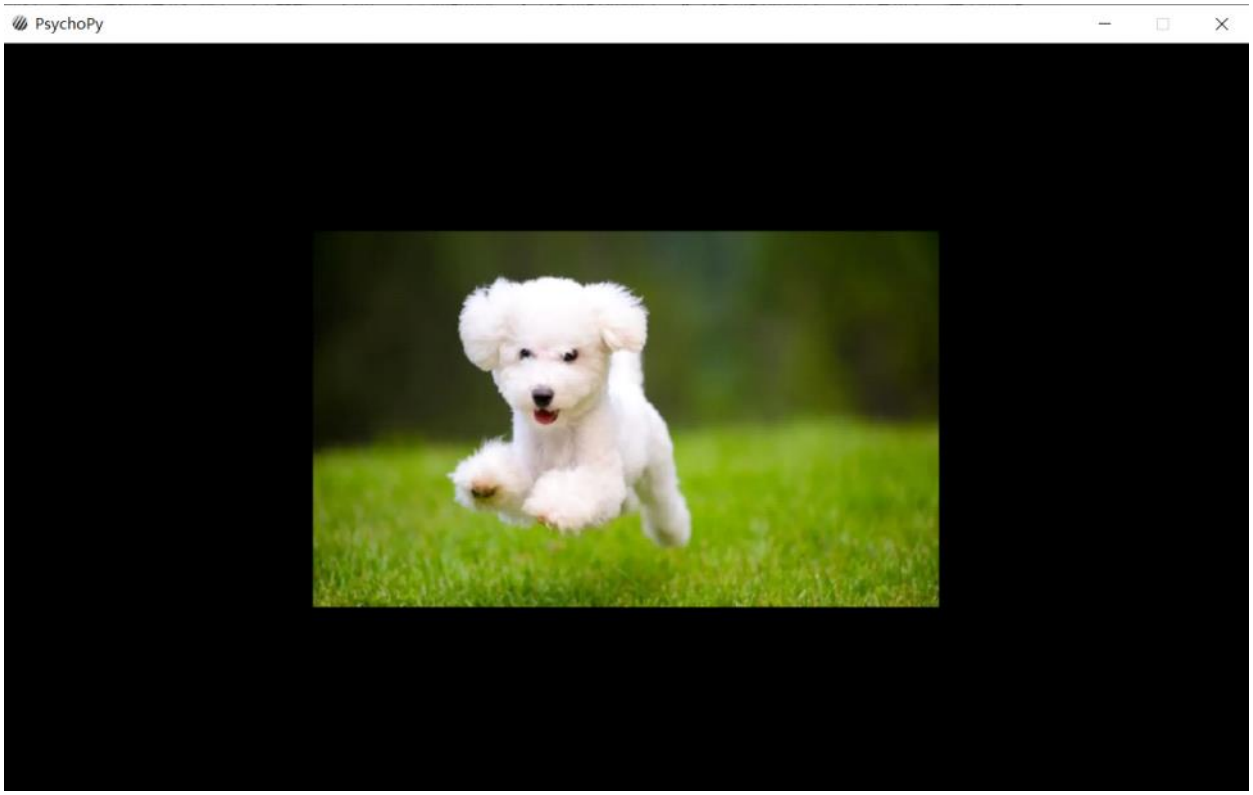
```
Training (9999 / 10000 Steps) (loss=0.00003): 100%|| 1/1 [00:01<00:00,  1.85s/it]
Training (10000 / 10000 Steps) (loss=0.00365):   0%|| 0/1 [00:01<?, ?it/s]11/23/2023 19:31:49 - INFO - __main__ - ***** Running Validation *****
11/23/2023 19:31:49 - INFO - __main__ -   Num steps = 3
11/23/2023 19:31:49 - INFO - __main__ -   Batch size = 64
Validating... (loss=0.29373): 100%|| 3/3 [00:00<00:00,  4.09it/s]
11/23/2023 19:31:49 - INFO - __main__ -  [00:00<00:01,  1.80it/s]

11/23/2023 19:31:49 - INFO - __main__ - Validation Results
11/23/2023 19:31:49 - INFO - __main__ - Global Steps: 10000
11/23/2023 19:31:49 - INFO - __main__ - Valid Loss: 0.31610
11/23/2023 19:31:49 - INFO - __main__ - Valid Accuracy: 0.94118
Training (10000 / 10000 Steps) (loss=0.00365):   0%|| 0/1 [00:02<?, ?it/s]
11/23/2023 19:31:49 - INFO - __main__ - Best Accuracy:  0.980392
11/23/2023 19:31:49 - INFO - __main__ - End Training!
```

TASK 4

Based on python, using the psychopy package.

```python
def display_fixation_cross(win, duration):
    # a fixation cross
    fixation_cross = visual.TextStim(win, text=u'+', height=0.5, pos=(0.0, 0.0), color='white', bold=True, italic=False)
    fixation_cross.draw()
    win.flip()
    core.wait(duration)

def display_dog_image(win, image_path, timer):
    dog_image = visual.ImageStim(win, image=image_path, pos=(0.0, 0.0), size=(1, 1))
    win.flip()

    # Record the start time of dog image presentation
    start_time = timer.getTime()

    dog_image.draw()
    win.flip()

    # Wait for key press and record the duration
    key_press = event.waitKeys(keyList=['space'])
    end_time = timer.getTime()
    duration = end_time - start_time

    return key_press, duration
```

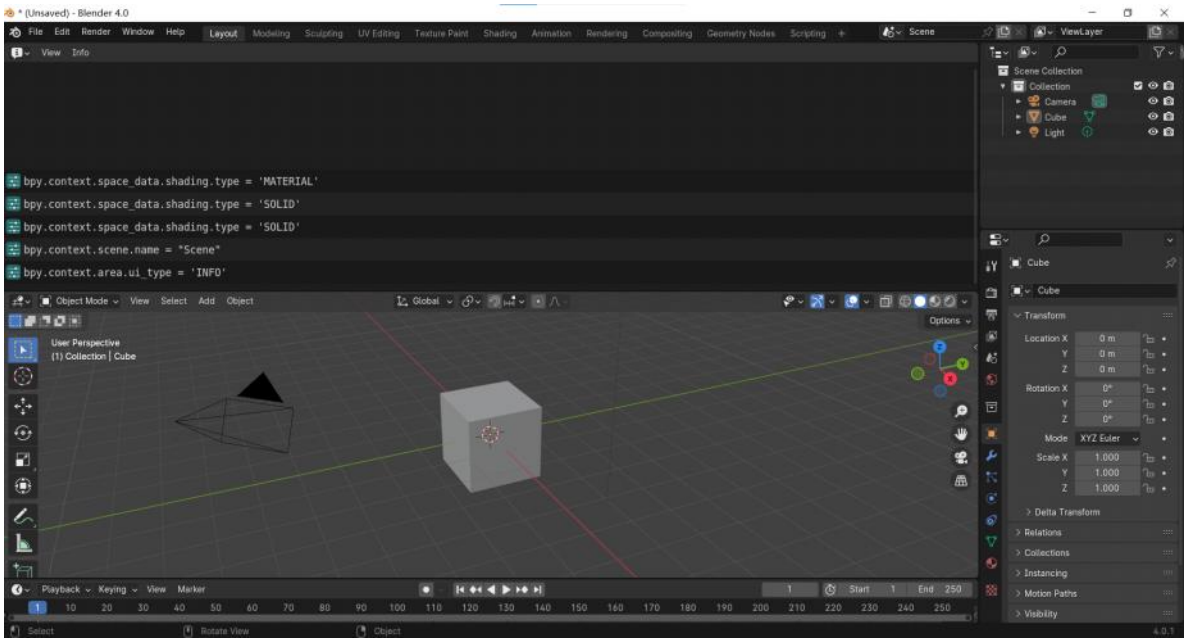


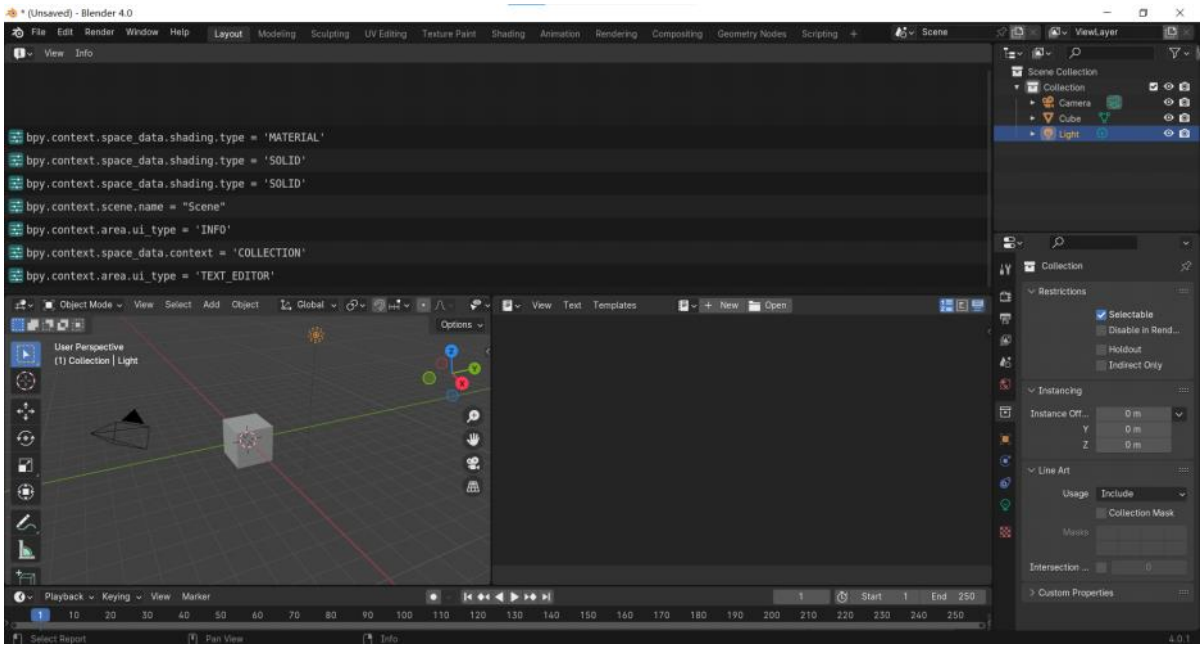


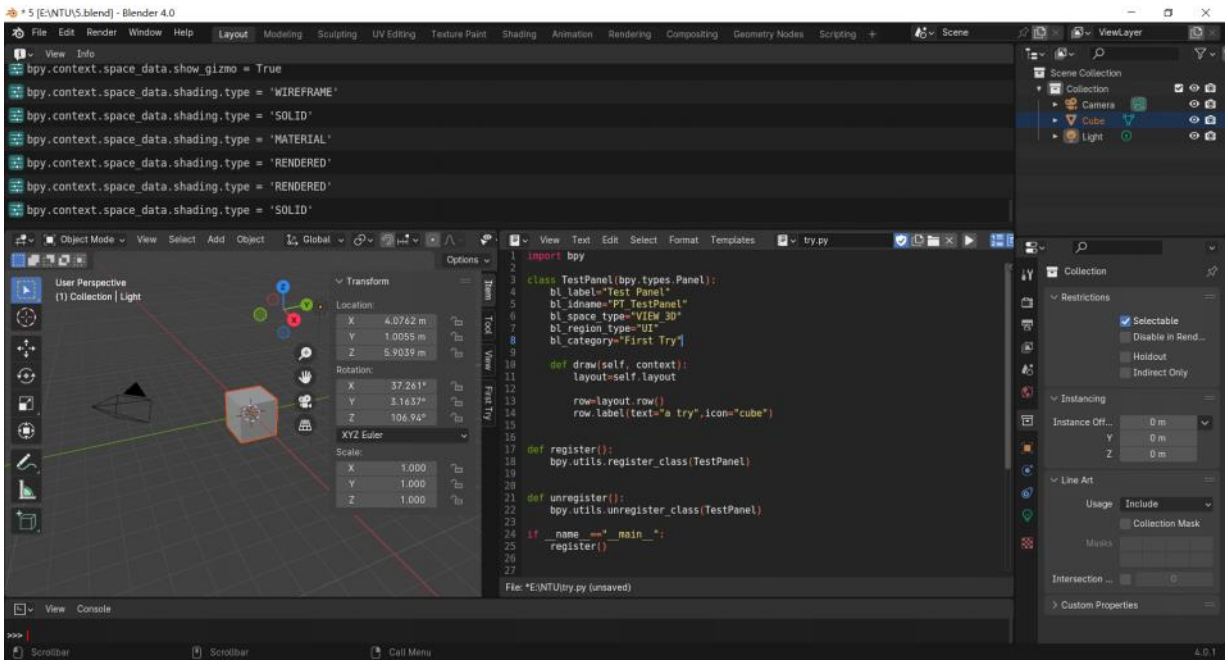
['space'] 0.21916459999920335

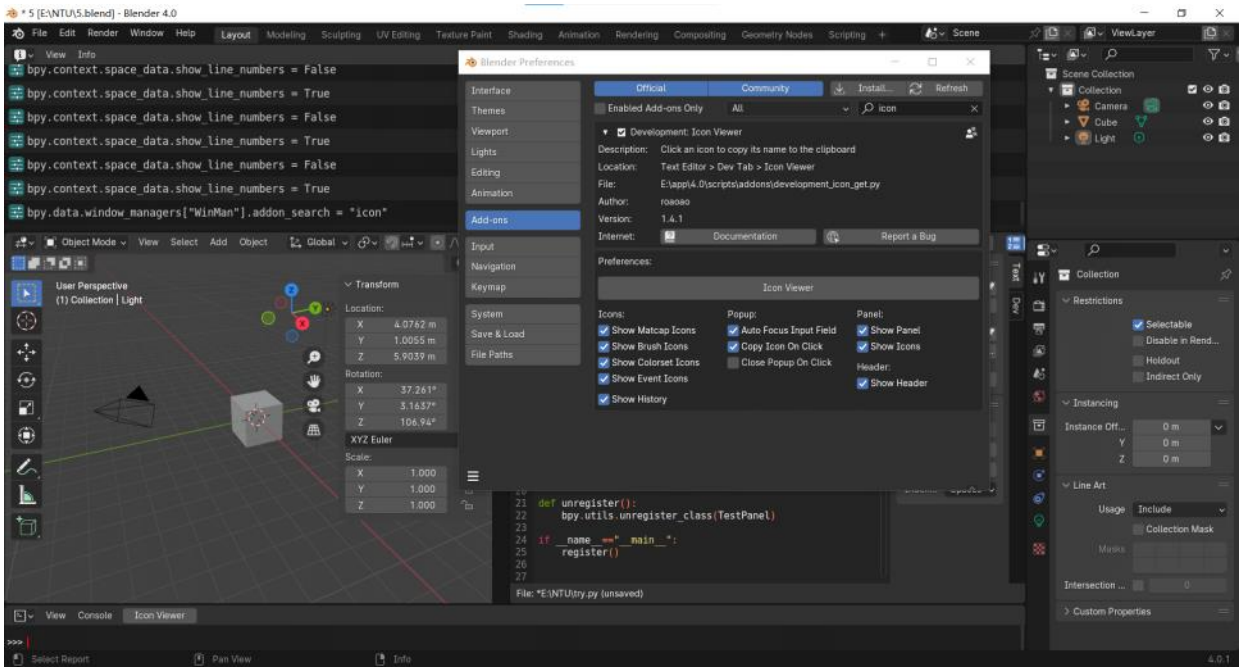
TASK 5

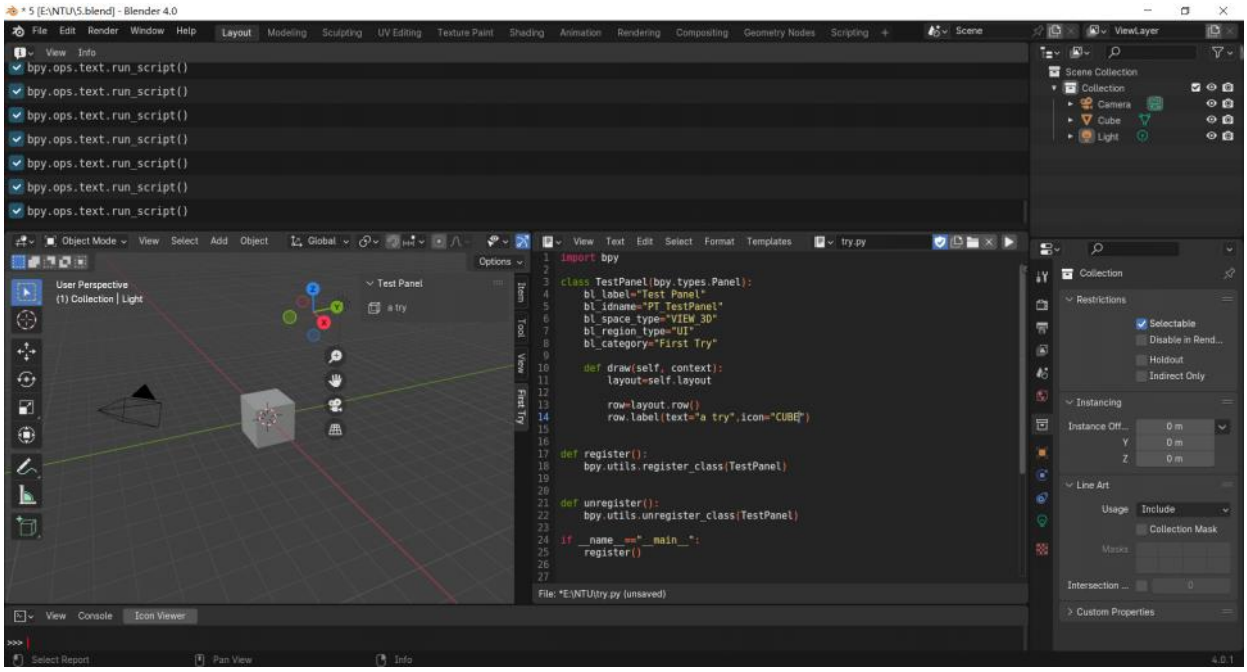
1. The core lies in familiarity with the software.

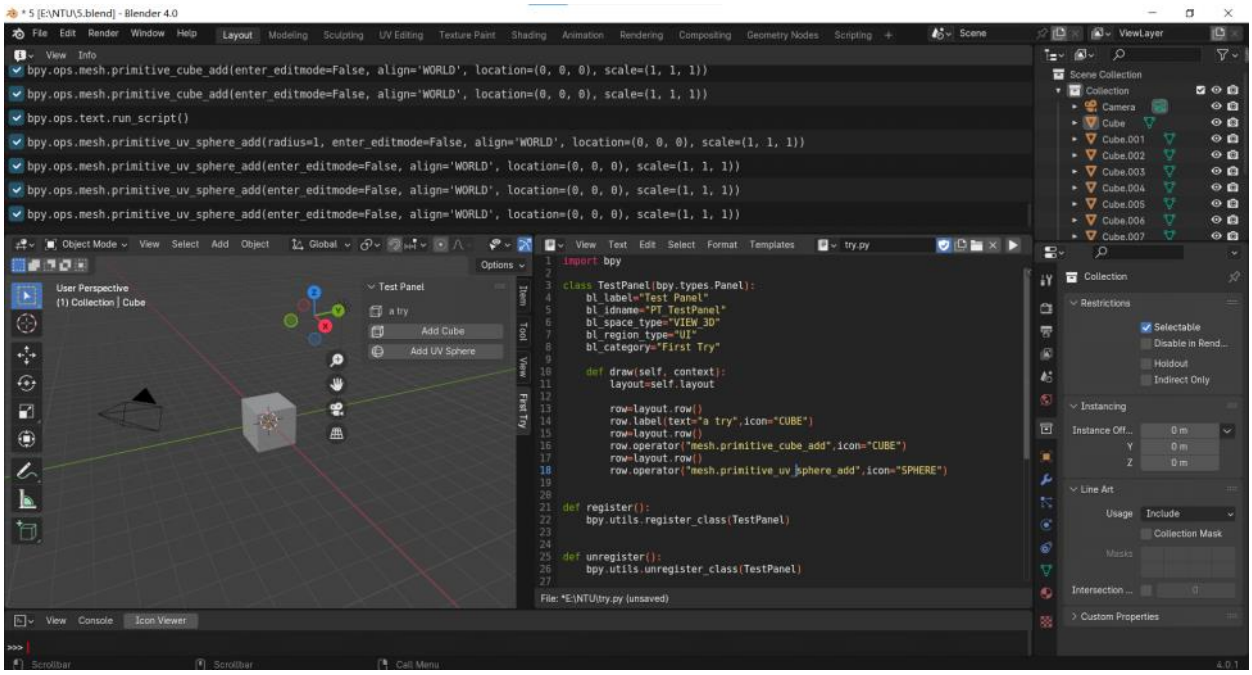

bpy.context.space_data.shading.type = 'MATERIAL'
bpy.context.space_data.shading.type = 'SOLID'
bpy.context.space_data.shading.type = 'SOLID'
bpy.context.scene.name = "Scene"
bpy.context.area.ui_type = 'INFO'


bpy.context.space_data.shading.type = 'MATERIAL'
bpy.context.space_data.shading.type = 'SOLID'
bpy.context.space_data.shading.type = 'SOLID'
bpy.context.scene.name = "Scene"
bpy.context.area.ui_type = 'INFO'
bpy.context.space_data.context = 'COLLECTION'
bpy.context.area.ui_type = 'TEXT_EDITOR'


bpy.context.space_data.show_gizmo = True
bpy.context.space_data.shading.type = 'WIREFRAME'
bpy.context.space_data.shading.type = 'SOLID'
bpy.context.space_data.shading.type = 'MATERIAL'
bpy.context.space_data.shading.type = 'RENDERED'
bpy.context.space_data.shading.type = 'RENDERED'
bpy.context.space_data.shading.type = 'SOLID'
import bpy
class TestPanel(bpy.types.Panel):
bl_label="Test Panel"
bl_idname="PT_TestPanel"
bl_space_type="VIEW_3D"
bl_region_type="UI"
bl_category="First Try"
def draw(self, context):
layout=self.layout
row=layout.row()
row.label(text="a try",icon="cube")
def register():
bpy.utils.register_class(TestPanel)
def unregister():
bpy.utils.unregister_class(TestPanel)
if __name__=="__main__":
register()


* 5 [E:\NTU\5.blend] - Blender 4.0
bpy.context.space_data.show_line_numbers = False
bpy.context.space_data.show_line_numbers = True
bpy.context.space_data.show_line_numbers = False
bpy.context.space_data.show_line_numbers = True
bpy.context.space_data.show_line_numbers = False
bpy.context.space_data.show_line_numbers = True
bpy.data.window_managers["WinMan"].addon_search = "icon"
Blender Preferences
Interface
Themes
Viewport
Lights
Editing
Animation
Add-ons
Input
Navigation
Keymap
System
Save & Load
File Paths
Official
Community
Install...
Refresh
Enabled Add-ons Only
All
icon
Development: Icon Viewer
Description: Click an icon to copy its name to the clipboard
Location: Text Editor > Dev Tab > Icon Viewer
File: E:\app\4.0\scripts\addons\development_icon_get.py
Author: roaoao
Version: 1.4.1
Internet: Documentation
Report a Bug
Preferences:
Icon Viewer
Icons:
Show Matcap Icons
Show Brush Icons
Show Colorset Icons
Show Event Icons
Show History
Popup:
Auto Focus Input Field
Copy Icon On Click
Close Popup On Click
Panel:
Show Panel
Show Icons
Header:
Show Header
def unregister():
bpy.utils.unregister_class(TestPanel)
if __name__=="__main__":
register()
File: *E:\NTU\try.py (unsaved)
User Perspective
(1) Collection | Light
Transform
Location:
Rotation:
Scale:
XYZ Euler
Scene Collection
Collection
Camera
Cube
Light
Restrictions
Instancing
Line Art
Custom Properties
View
Console
Icon Viewer
Select Report
Pan View
Info


* 5 [E:\NTU\5.blend] - Blender 4.0
bpy.ops.text.run_script()
bpy.ops.text.run_script()
bpy.ops.text.run_script()
bpy.ops.text.run_script()
bpy.ops.text.run_script()
bpy.ops.text.run_script()
bpy.ops.text.run_script()
import bpy
class TestPanel(bpy.types.Panel):
bl_label="Test Panel"
bl_idname="PT_TestPanel"
bl_space_type="VIEW_3D"
bl_region_type="UI"
bl_category="First Try"
def draw(self, context):
layout=self.layout
row=layout.row()
row.label(text="a try",icon="CUBE")
def register():
bpy.utils.register_class(TestPanel)
def unregister():
bpy.utils.unregister_class(TestPanel)
if __name__=="__main__":
register()
File: *E:\NTU\try.py (unsaved)
User Perspective
(1) Collection | Light
Test Panel
a try
Scene Collection
Collection
Camera
Cube
Light
Restrictions
Instancing
Line Art
Custom Properties
View
Console
Icon Viewer
Select Report
Pan View
Info


* 5 [E:\NTU\5.blend] - Blender 4.0
bpy.ops.mesh.primitive_cube_add(enter_editmode=False, align='WORLD', location=(0, 0, 0), scale=(1, 1, 1))
bpy.ops.mesh.primitive_cube_add(enter_editmode=False, align='WORLD', location=(0, 0, 0), scale=(1, 1, 1))
bpy.ops.text.run_script()
bpy.ops.mesh.primitive_uv_sphere_add(radius=1, enter_editmode=False, align='WORLD', location=(0, 0, 0), scale=(1, 1, 1))
bpy.ops.mesh.primitive_uv_sphere_add(enter_editmode=False, align='WORLD', location=(0, 0, 0), scale=(1, 1, 1))
bpy.ops.mesh.primitive_uv_sphere_add(enter_editmode=False, align='WORLD', location=(0, 0, 0), scale=(1, 1, 1))
bpy.ops.mesh.primitive_uv_sphere_add(enter_editmode=False, align='WORLD', location=(0, 0, 0), scale=(1, 1, 1))
import bpy
class TestPanel(bpy.types.Panel):
bl_label="Test Panel"
bl_idname="PT_TestPanel"
bl_space_type="VIEW_3D"
bl_region_type="UI"
bl_category="First Try"
def draw(self, context):
layout=self.layout
row=layout.row()
row.label(text="a try",icon="CUBE")
row=layout.row()
row.operator("mesh.primitive_cube_add",icon="CUBE")
row=layout.row()
row.operator("mesh.primitive_uv_sphere_add",icon="SPHERE")
def register():
bpy.utils.register_class(TestPanel)
def unregister():
bpy.utils.unregister_class(TestPanel)
File: *E:\NTU\try.py (unsaved)
User Perspective
(1) Collection | Cube
Test Panel
a try
Add Cube
Add UV Sphere
Scene Collection
Collection
Camera
Cube
Cube.001
Cube.002
Cube.003
Cube.004
Cube.005
Cube.006
Cube.007
Restrictions
Instancing
Line Art
Custom Properties
View
Console
Icon Viewer

2. Attempts to simulate the collision process and the rebound process ended up with primitive results.