PRiR

Lab 12

Zadanie 1

Wykorzystaj program https://colab.research.google.com/github/tensorflow/graphics/blob/master/tensorflow_graphics/g3doc/_index.ipynb do wyświetlenia innych obiektów 3D

1. Instalacja tensorflow-graphics oraz trimesh

```
[1]  !pip install tensorflow-graphics
     !pip install trimesh
```

2. Importowanie niezbędnych bibliotek do wyświetlania obiektów

```
[2]  import numpy as np
     import tensorflow as tf
     import trimesh

     import tensorflow_graphics.geometry.transformation as tfg_transformation
     from tensorflow_graphics.notebooks import threejs_visualization
```

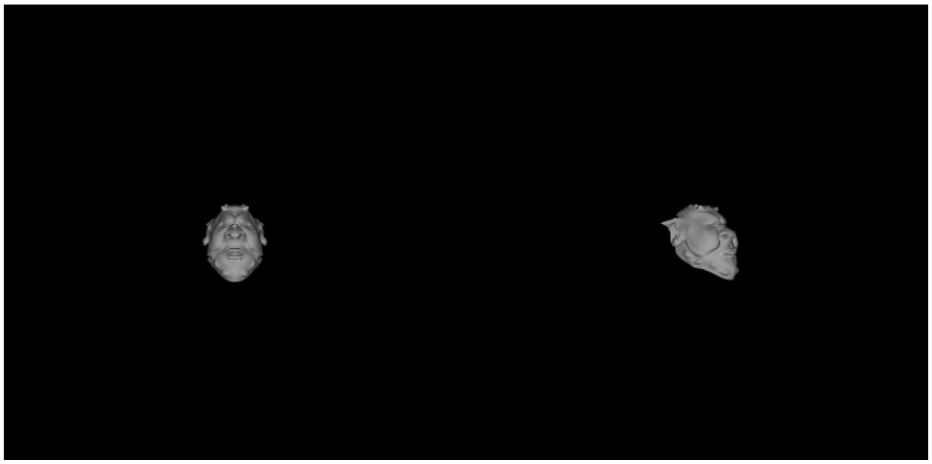
3. Wczytanie i wyświetlenie obiektu

```
!wget -N https://raw.githubusercontent.com/dge07/Lab12/main/bs_angry.obj
mesh = trimesh.load("bs_angry.obj")
mesh = {"vertices": mesh.vertices, "faces": mesh.faces}
_ = threejs_visualization.triangular_mesh_renderer(mesh, width=400, height=400)
axis = np.array((0., 1., 0.))
angle = np.array((np.pi / 4.,))
mesh["vertices"] = tfg_transformation.axis_angle.rotate(mesh["vertices"], axis,
                                                        angle).numpy()
_ = threejs_visualization.triangular_mesh_renderer(mesh, width=400, height=400)
```

```
--2021-01-30 11:28:00--  https://raw.githubusercontent.com/dge07/Lab12/main/bs_angry.obj
Resolving raw.githubusercontent.com (raw.githubusercontent.com)... 151.101.0.133, 151.101.64.133, 151.101.128.133, ...
Connecting to raw.githubusercontent.com (raw.githubusercontent.com)|151.101.0.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 3780299 (3.6M) [text/plain]
Saving to: ‘bs_angry.obj’

bs_angry.obj        100%[===================>]   3.60M  --.-KB/s    in 0.1s

Last-modified header missing -- time-stamps turned off.
2021-01-30 11:28:00 (34.6 MB/s) - ‘bs_angry.obj’ saved [3780299/3780299]
```



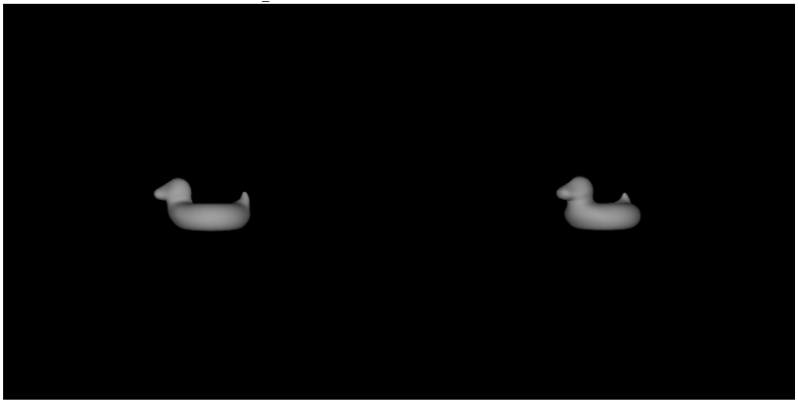
```
!wget -N https://raw.githubusercontent.com/dge07/Lab12/main/bob_tri.obj
mesh = trimesh.load("bob_tri.obj")
mesh = {"vertices": mesh.vertices, "faces": mesh.faces}
_ = threejs_visualization.triangular_mesh_renderer(mesh, width=400, height=400)
axis = np.array((0., 1., 0.))
angle = np.array((np.pi / 4.,))
mesh["vertices"] = tfg_transformation.axis_angle.rotate(mesh["vertices"], axis,
                                                        angle).numpy()
_ = threejs_visualization.triangular_mesh_renderer(mesh, width=400, height=400)
```

```
--2021-01-30 11:38:18--  https://raw.githubusercontent.com/dge07/Lab12/main/bob_tri.obj
Resolving raw.githubusercontent.com (raw.githubusercontent.com)... 151.101.0.133, 151.101.64.133, 151.101.128.133, ...
Connecting to raw.githubusercontent.com (raw.githubusercontent.com)|151.101.0.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 935736 (914K) [text/plain]
Saving to: ‘bob_tri.obj’

bob_tri.obj         100%[===================>] 913.80K  --.-KB/s    in 0.04s

Last-modified header missing -- time-stamps turned off.
2021-01-30 11:38:18 (25.3 MB/s) - ‘bob_tri.obj’ saved [935736/935736]

unable to load materials from: bob_tri.mtl
```



Aby wyświetlać inne obiekty, skorzystałem ze strony www.cs.cmu.edu/~kmcrane/Projects/ModelRepository/

na której są ogólno dostępne modele do pobrania. Pobrałem je na swój komputer, pliki typu .obj umieściłem na swoim GitHubie, po czym ścieżki do nich umieściłem w programie. Efektem są wyżej wyświetlone modele.