



```
"typeScene": "VIRTUAL",
"objects": [
{
  "name": "Esfera petita",
  "type": "sphere",
  "center": [0.0, 0.0, 0.0],
  "radius": 0.5,
  "material": {
    "type": "lambertian",
    "ka": [0.2, 0.2, 0.2],
    "kd": [0.5, 0.5, 0.5],
    "ks": [1.0, 1.0, 1.0],
    "shininess": 10.0,
    "kt": [0.0, 0.0, 0.0],
    "nut": 0.0
  }
}
```

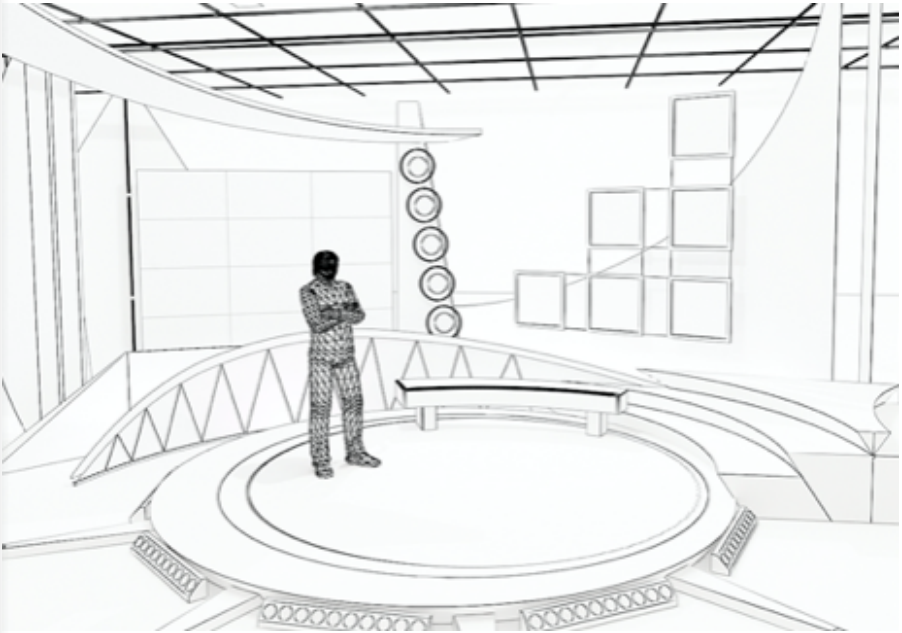
spheres.json

DATA_TYPES::VIRTUALWORLD
DATA_TYPES::TEMPORALVW

Objectes
Virtuals

elements geomètrics
(objectes)
propietats òptiques
(materials i textures)

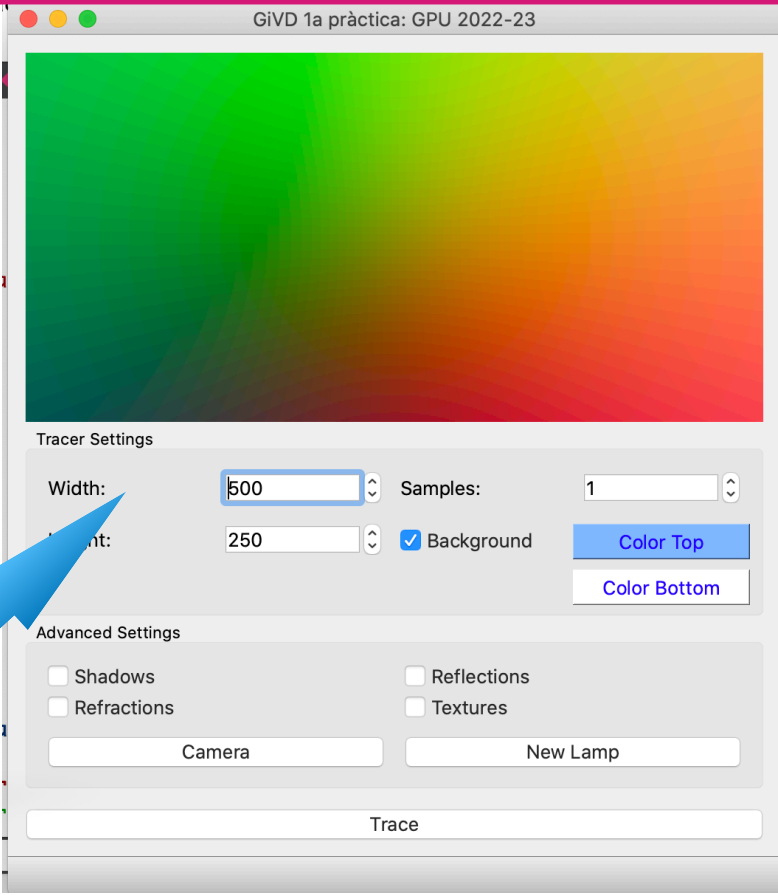
OBJECT_TYPES::SPHERE
OBJECT_TYPES::PLANE
MATERIAL_TYPES::MATERIAL,
MATERIAL_TYPES::COLORMAP
LIGHT_TYPES::POINTLIGHT



Coordenades de Món

Escena virtual

RayTracer



Fitxer .png

Fitxer .png

setup.json

```
{
  "camera": {
    "lookFrom": [0.0, 0.0, 2.0],
    "lookAt": [0, 0, -1],
    "vup": [0, 1, 0],
    "vfov": 90.0,
    "aspectRatio": 1.77,
    "pixelsX": 400
  },
  "background": true,
  "MAXDEPTH": 1,
  "colorTopBackground": [0.5, 0.7, 1],
  "colorDownBackground": [ 1.0, 0.2, 0.2]
}
```

dadesEuropa.json

Adquisició de
dades

Visual
mapping

DATA_TYPES::REALDATA
DATA_TYPES::TEMPORALDATA

```
"typeScene": "REALDATA",
"properties": [
{
  "name": "temperatura",
  "gyzmo": "sphere",
  "minValue": 0,
  "maxValue": 500000,
  "colorMap": "COLOR_MAP_TYPE_PLASMA",
  "material": {
    "type": "lambertian",
    "ka": [0.2, 0.2, 0.2],
    "kd": [0.7,0.6,0.5],
    "ks": [0.7, 0.7, 0.7],
    "shininess": 10.0
  }
},
"data": [
[ 2.1, 41.31, 10000],
[ 2.2, 41.32, 10000],
[ 2.25, 41.35, 10000],
[ 2.07, 41.45, 10000],
[
[

```



ETAPA 1: Modelatge

ETAPA 2: Visualitació



```
"typeScene": "VIRTUAL",
"objects": [
{
  "name": "Esfera petita",
  "type": "sphere",
  "center": [0.0, 0.0, 0.0],
  "radius": 0.5,
  "material": {
    "type": "lambertian",
    "ka": [0.2, 0.2, 0.2],
    "kd": [0.5, 0.5, 0.5],
    "ks": [1.0, 1.0, 1.0],
    "shininess": 10.0,
    "kt": [0.0, 0.0, 0.0],
    "nut": 0.0
  }
}
```

spheres.json

DATA_TYPES::VIRTUALWORLD
DATA_TYPES::TEMPORALVW

Objectes
Virtuals

Modelling

Visual
mapping

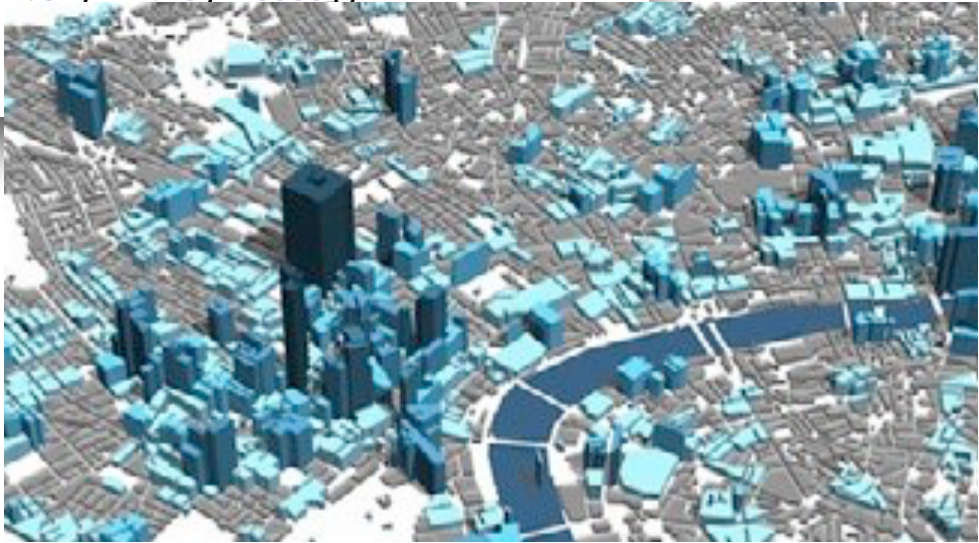
Adquisició de
dades

dadesEuropa.json

DATA_TYPES::REALDATA
DATA_TYPES::TEMPORALDATA

```
"typeScene": "REALDATA",
"properties": [
{
  "name": "temperatura",
  "gyzmo": "sphere",
  "minValue": 0,
  "maxValue": 500000,
  "colorMap": "COLOR_MAP_TYPE_PLASMA",
  "material": {
    "type": "lambertian",
    "ka": [0.2, 0.2, 0.2],
    "kd": [0.7,0.6,0.5],
    "ks": [0.7, 0.7, 0.7],
    "shininess": 10.0
  }
},
"data": [
[ 2.1, 41.31, 10000],
[ 2.2, 41.32, 10000],
[ 2.25, 41.35, 10000],
[ 2.07, 41.45, 10000],
[
[

```

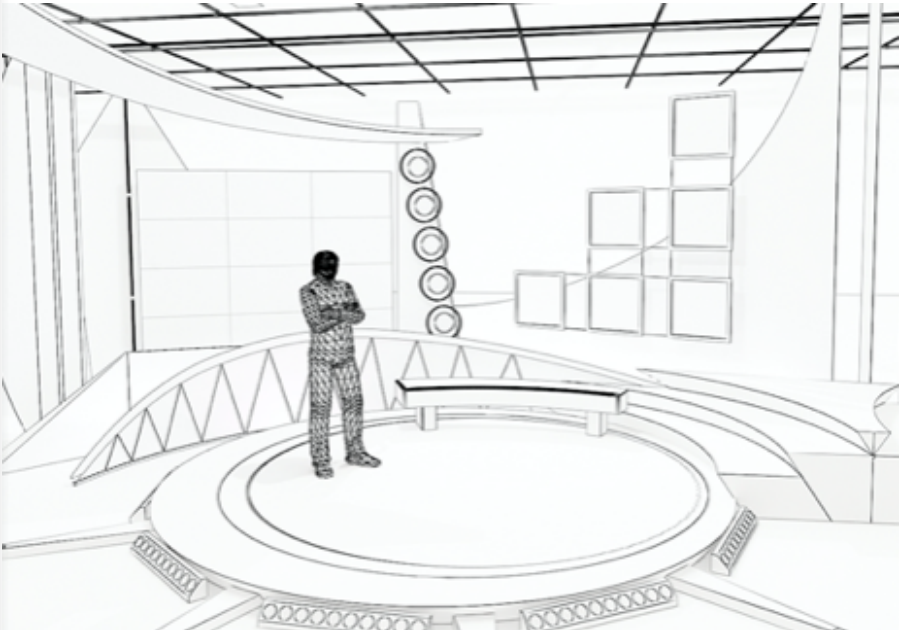


elements geomètrics
(objectes)
propietats òptiques
(materials i textures)

OBJECT_TYPES::SPHERE
OBJECT_TYPES::PLANE

MATERIAL_TYPES::MATERIAL,
MATERIAL_TYPES::COLORMAP

LIGHT_TYPES::POINTLIGHT



Coordenades de Món

Escena virtual

RayTracer

Rendering

Fitxer .png

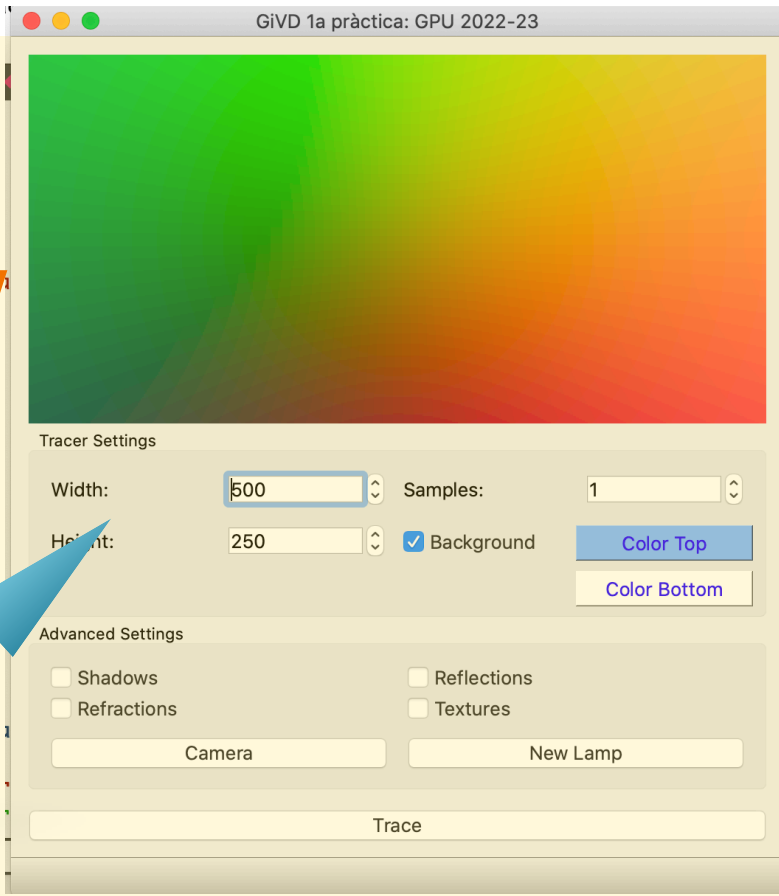
Fitxer .png

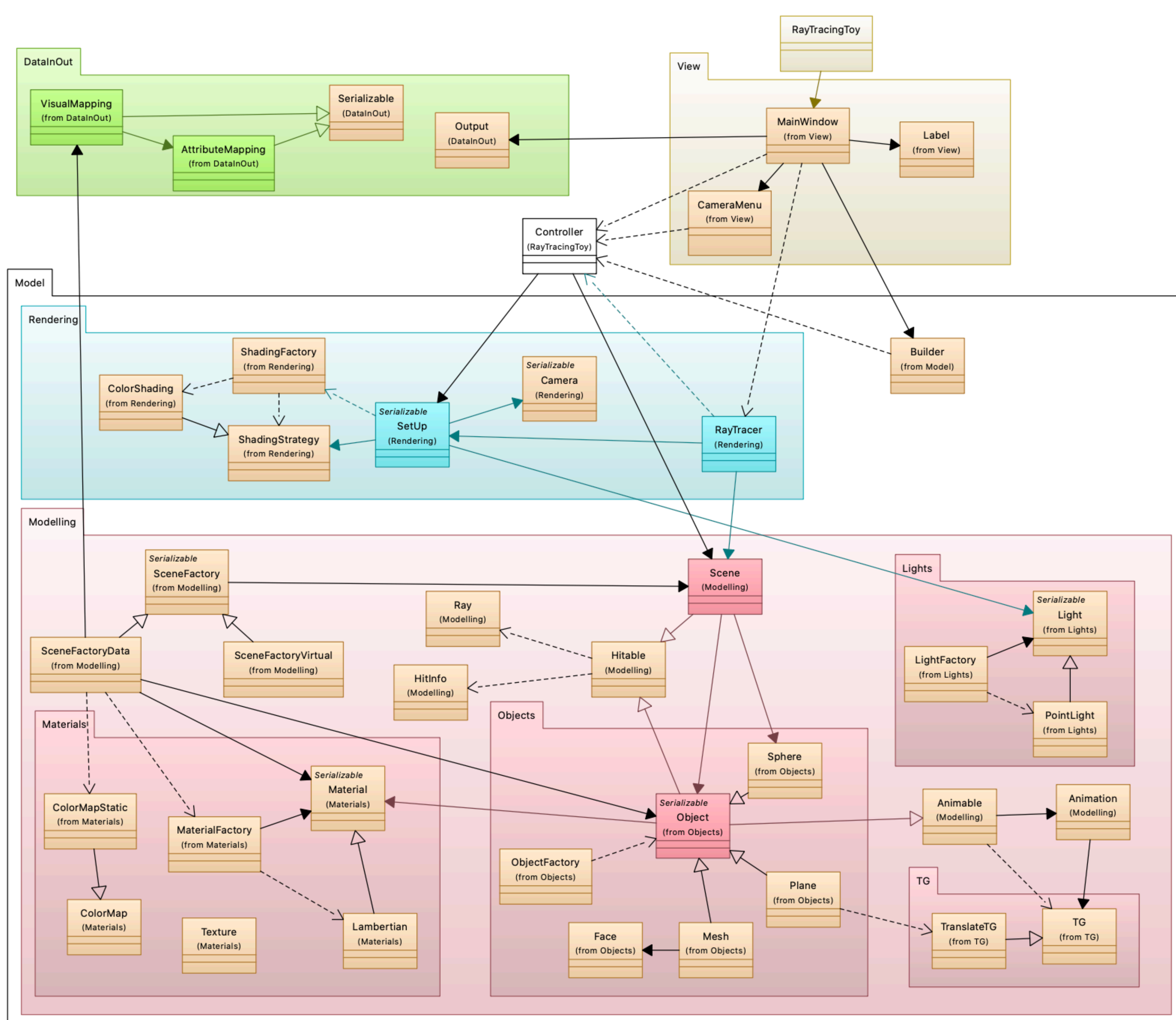
setup.json

```
{
  "camera": {
    "lookFrom": [0.0, 0.0, 2.0],
    "lookAt": [0, 0, -1],
    "vup": [0, 1, 0],
    "vfov": 90.0,
    "aspectRatio": 1.77,
    "pixelsX": 400
  },
  "background": true,
  "MAXDEPTH": 1,
  "colorTopBackground": [0.5, 0.7, 1],
  "colorDownBackground": [ 1.0, 0.2, 0.2]
}
```

DataInOut

View





Apple RayTracingToy File Shadings

GiVD 1a pràctica: GPU 2022-23

Tracer Settings

Width: 500

Samples: 1

Height: 250

☒ Background

Color Top

Color Bottom

Advanced Settings

☐ Shadows

☐ Reflections

☐ Refractions

☐ Textures

Camera

New Lamp

Trace

Àrea de menús:
Lectura d'escenes i
Shadings

Settings
bàsics

Settings
avançats

Execució
del
RayTracing