



Réalité Virtuelle

Moteur 3D

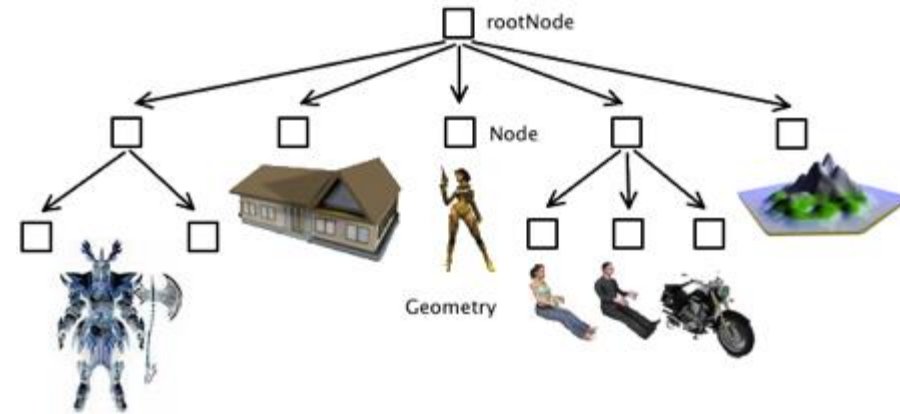
Année 2019-2020

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Moteur 3D

- Scène
 - Objets
 - Caméras
 - Lumières
 - ...

Graphe de scène



- Utilise une API 3D bas niveau

Composants d'un moteur 3D



Moteur de rendu



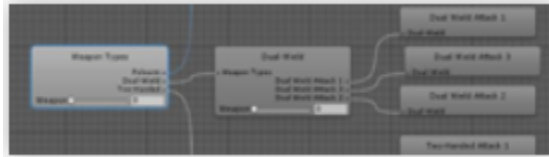
Moteur audio



Moteur de scripts



Moteur physique



Moteur d'animation



IA (navigation)



Couche réseau



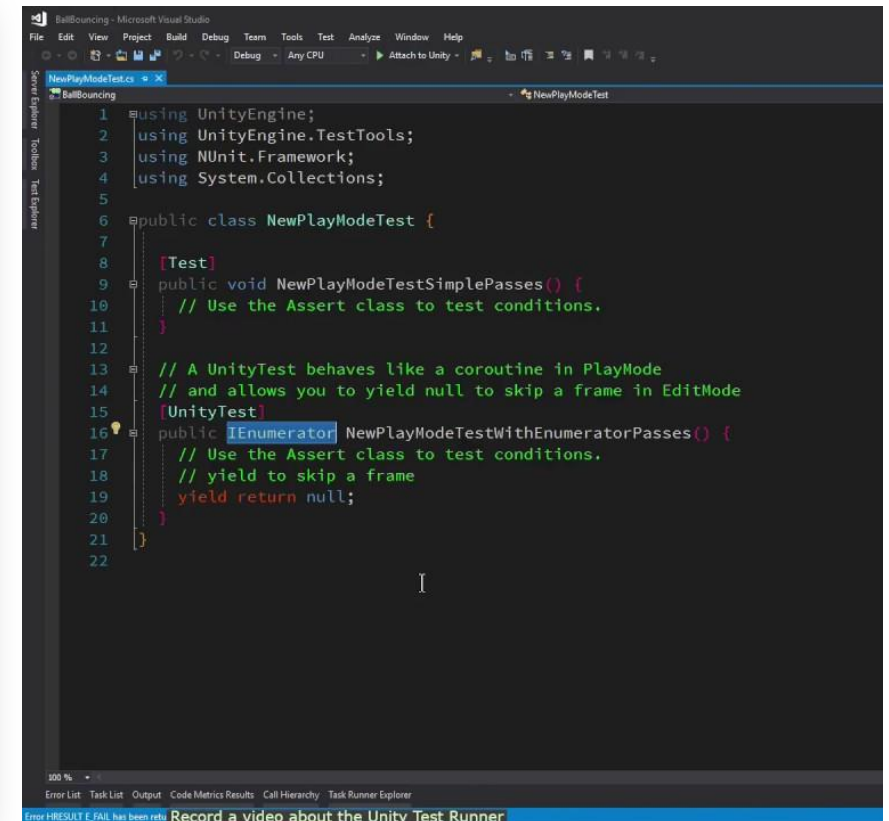
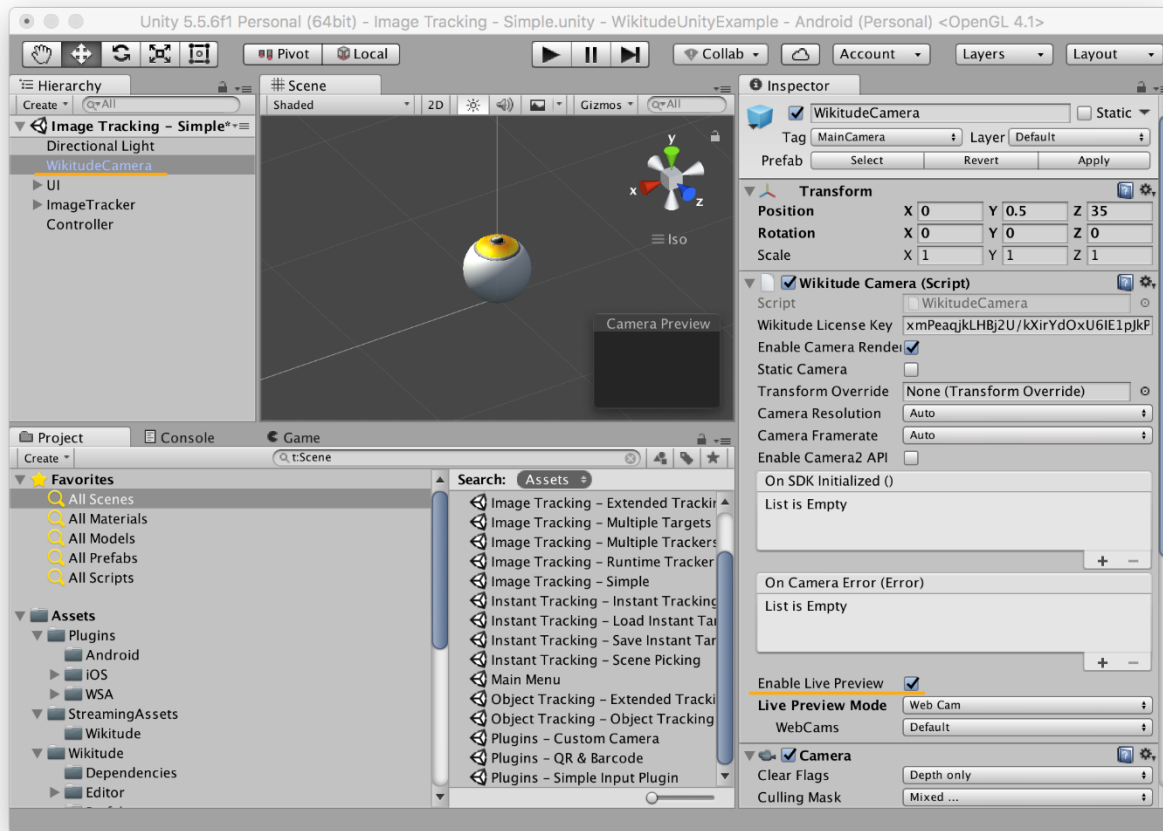
Interfaces graphiques



Editeur

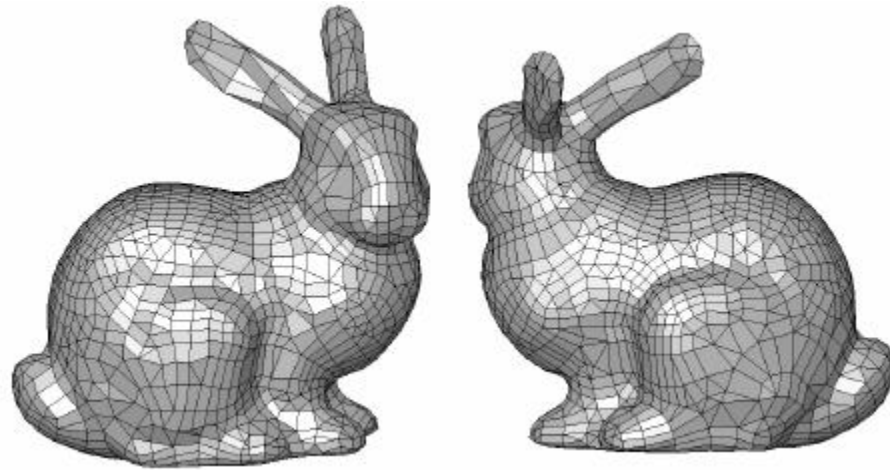
Moteur 3D

- Editeur / environnement de développement



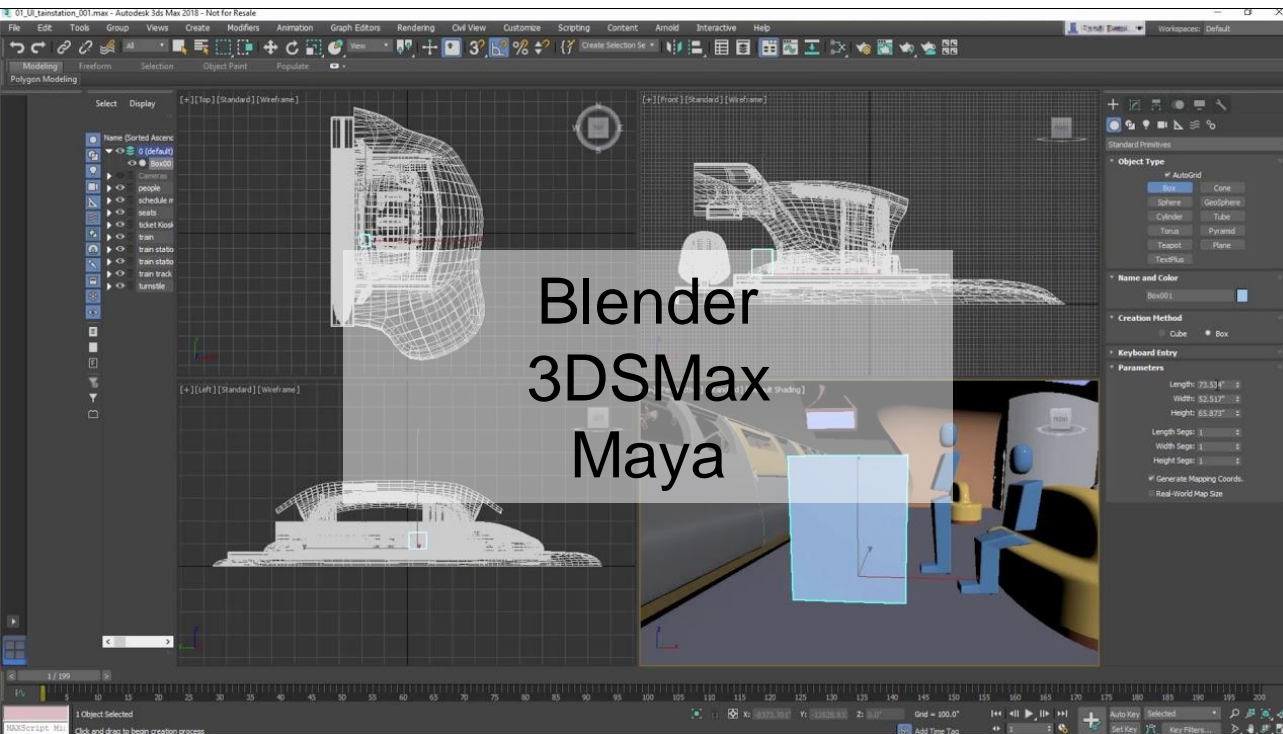
Moteur 3D

- Import de modèles 3D



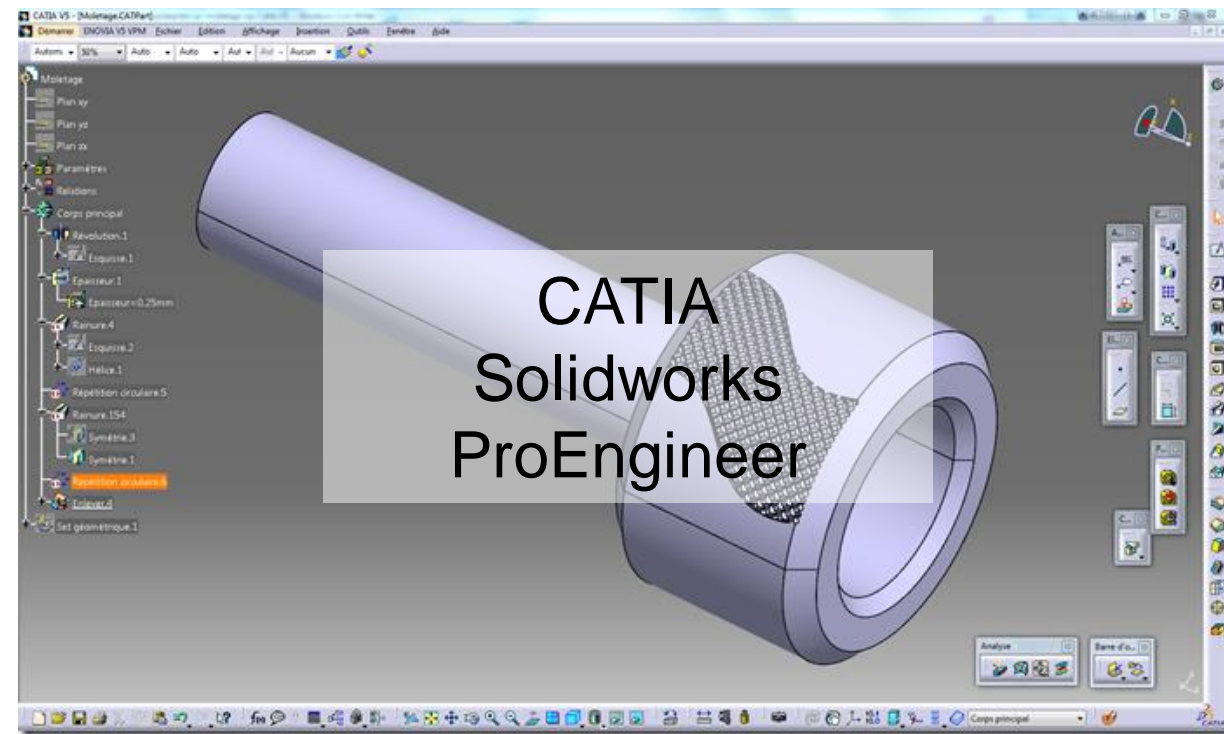
Modélisation 3D

Infographie 3D



Blender
3DSMax
Maya

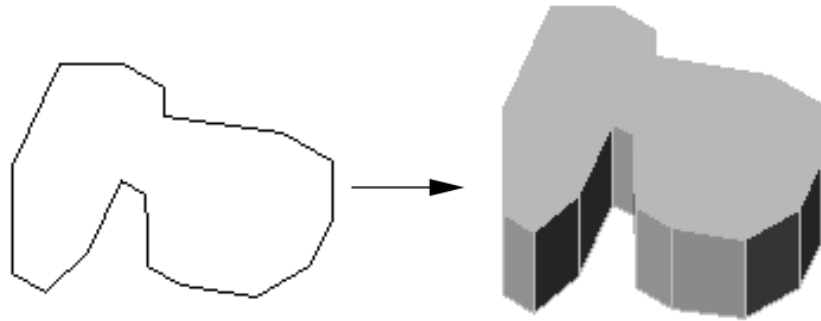
CAO



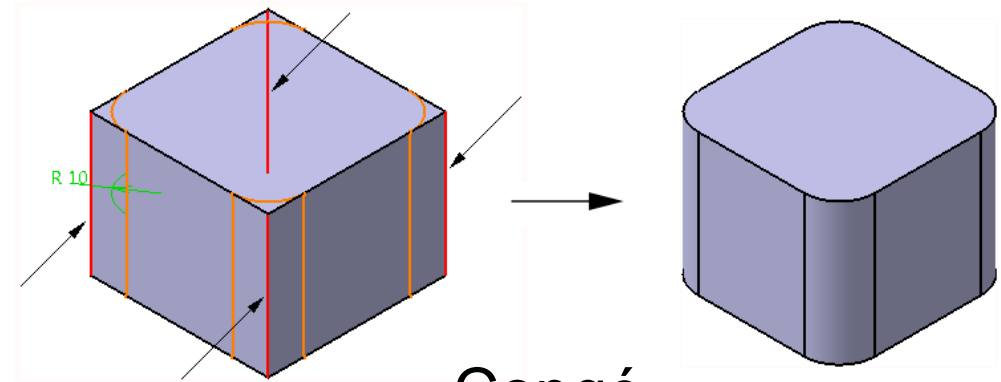
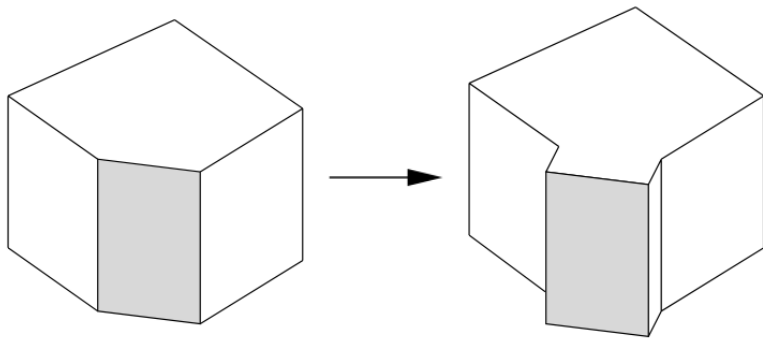
CATIA
Solidworks
ProEngineer

Modélisation CAO

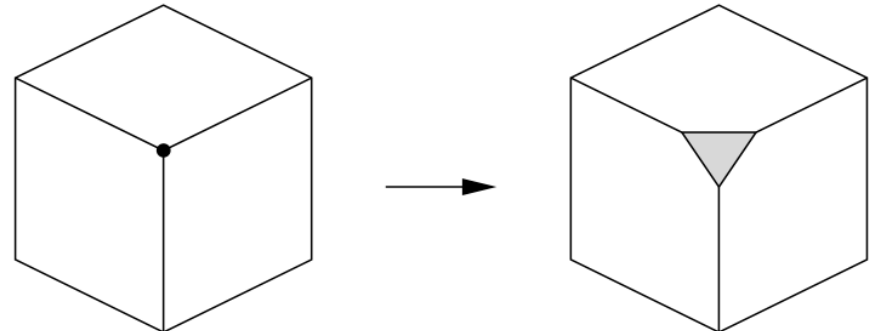
- Opérations paramétriques



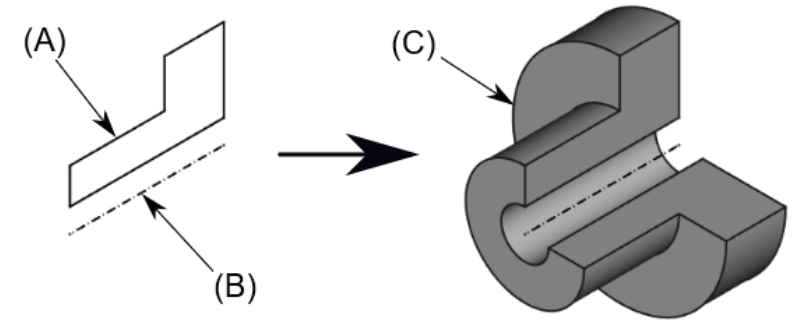
Extrusion



Congé



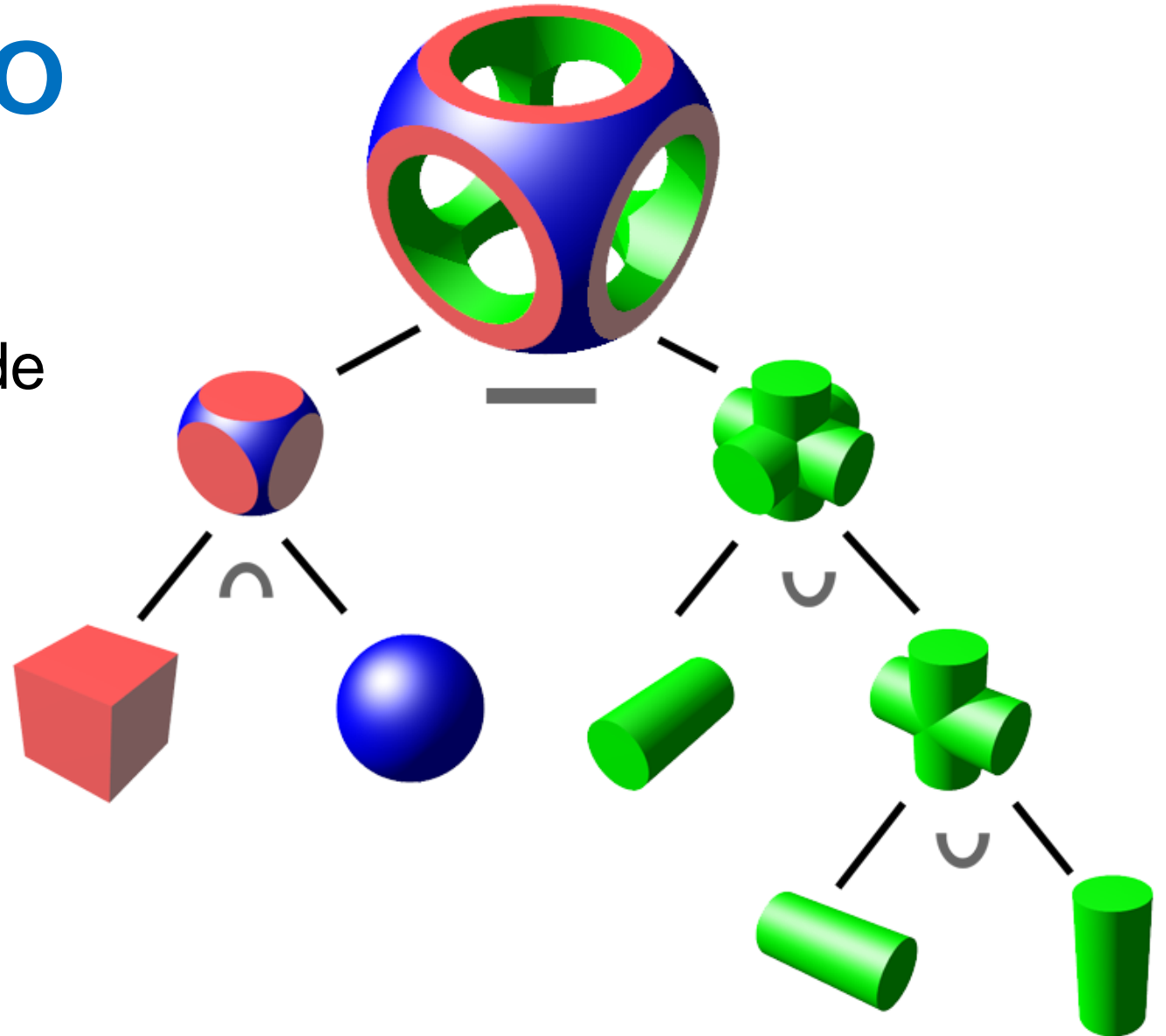
Chanfrein



Révolution

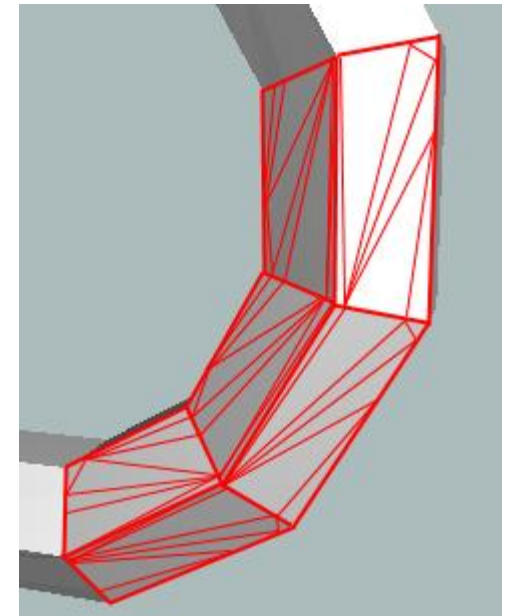
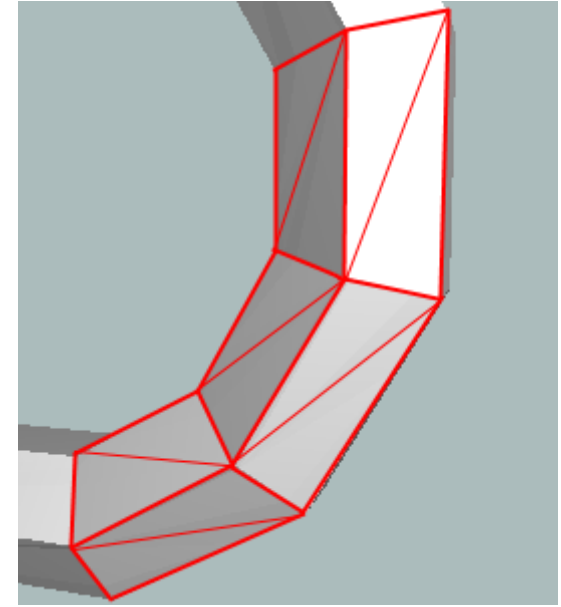
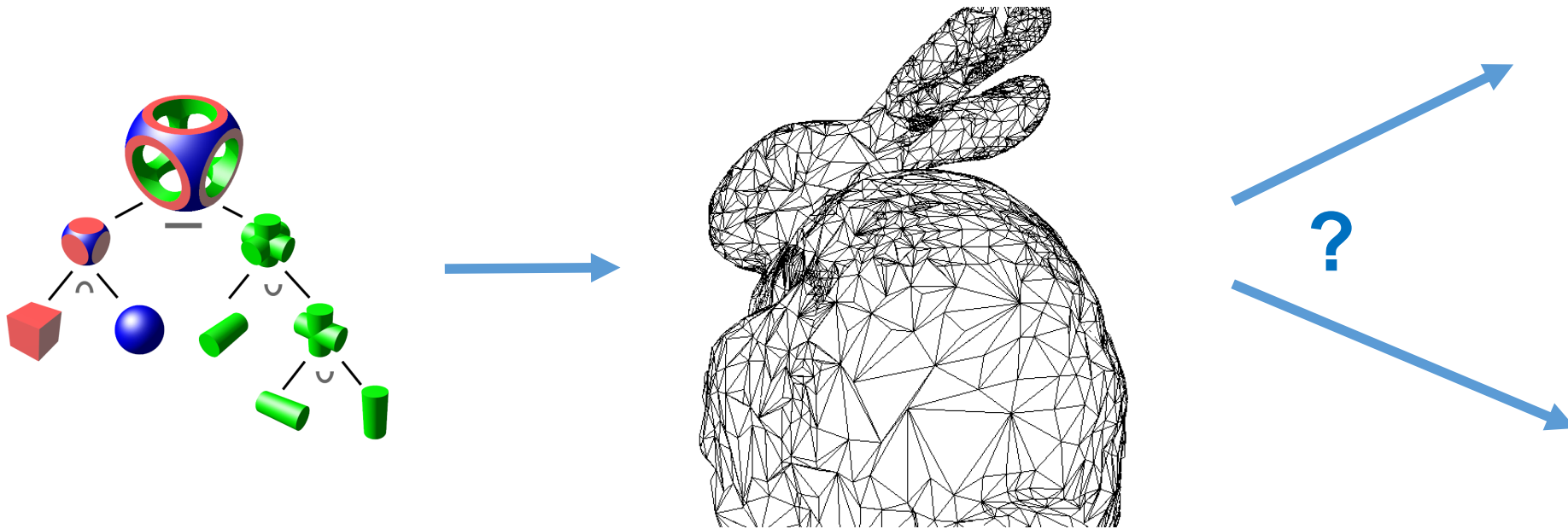
Modélisation CAO

- Opérations booléennes :
Géométrie de construction de solides (CSG)

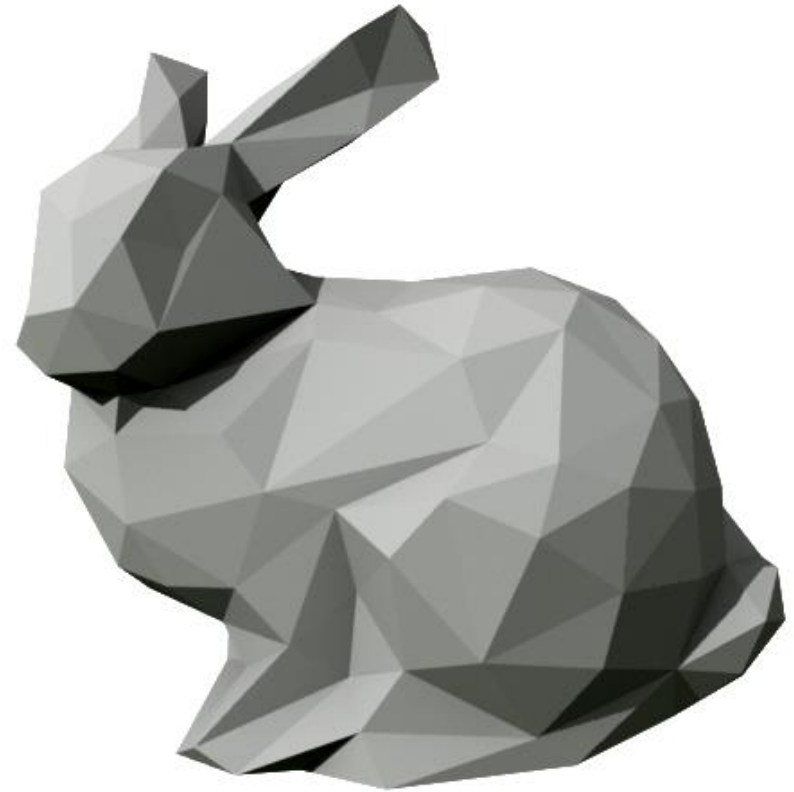


Tessellation

- Création d'un maillage : passage d'un modèle CAO à un modèle triangulé



Tessellation



Import de modèles 3D

- Import de modèles tessellés

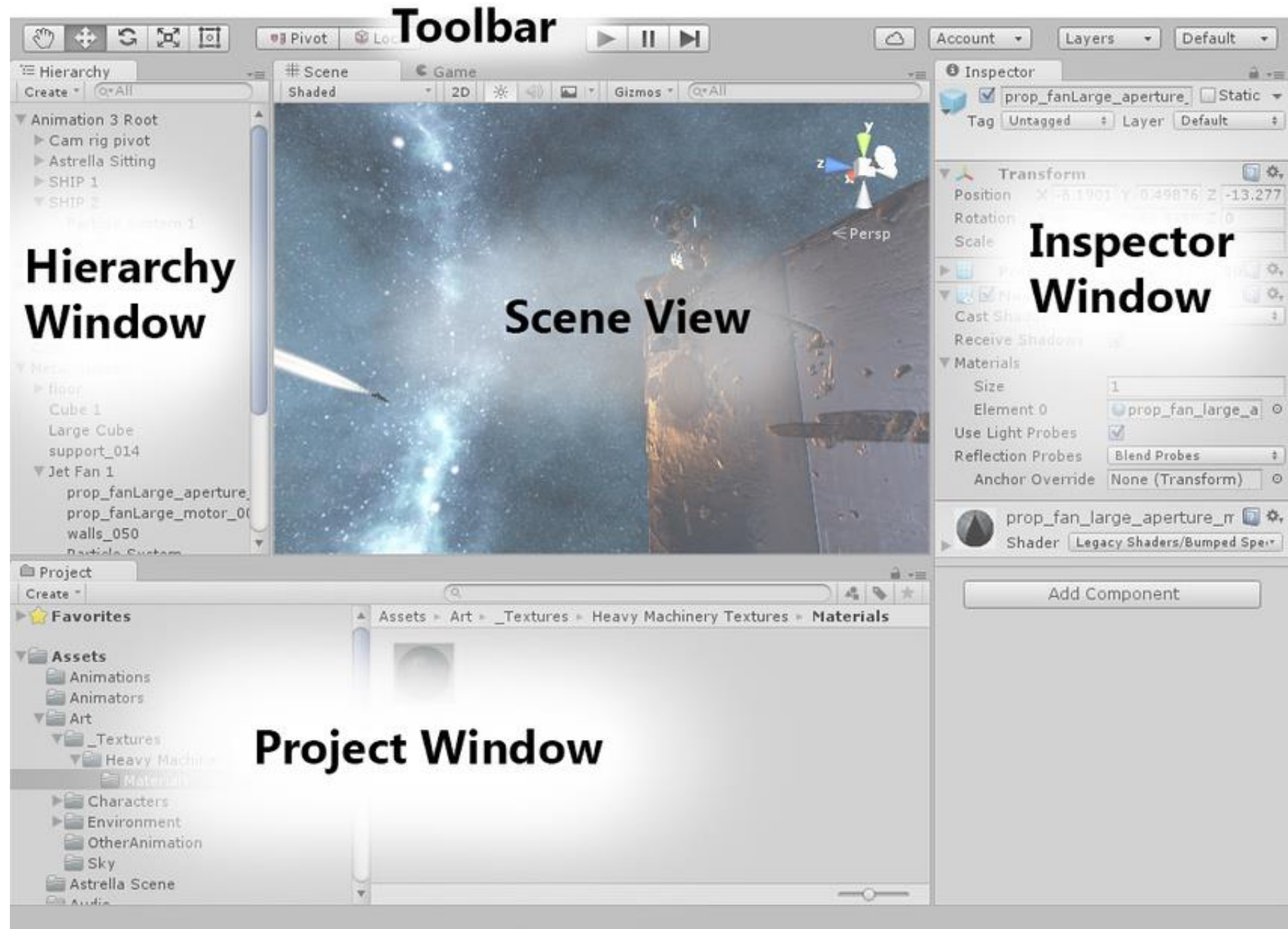
Pour Unity :

- **Autodesk FBX (.fbx)**
- Collada (.dae)
- Wavefront (.obj)
- Autodesk 3DS (.3ds)
- AutoCAD Drawig eXchange Format (.dxf)

Exemples de moteurs 3D

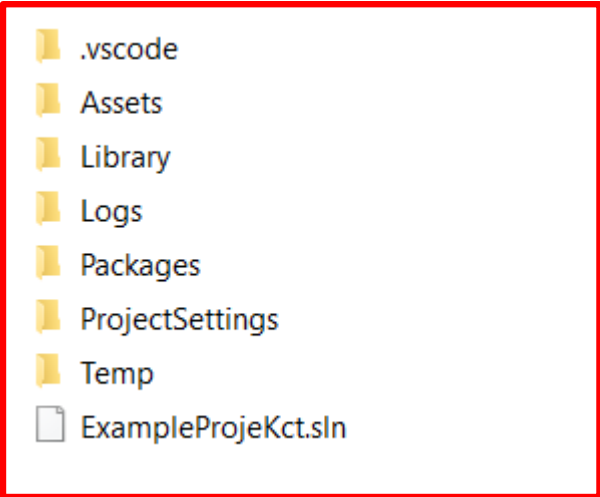


Unity

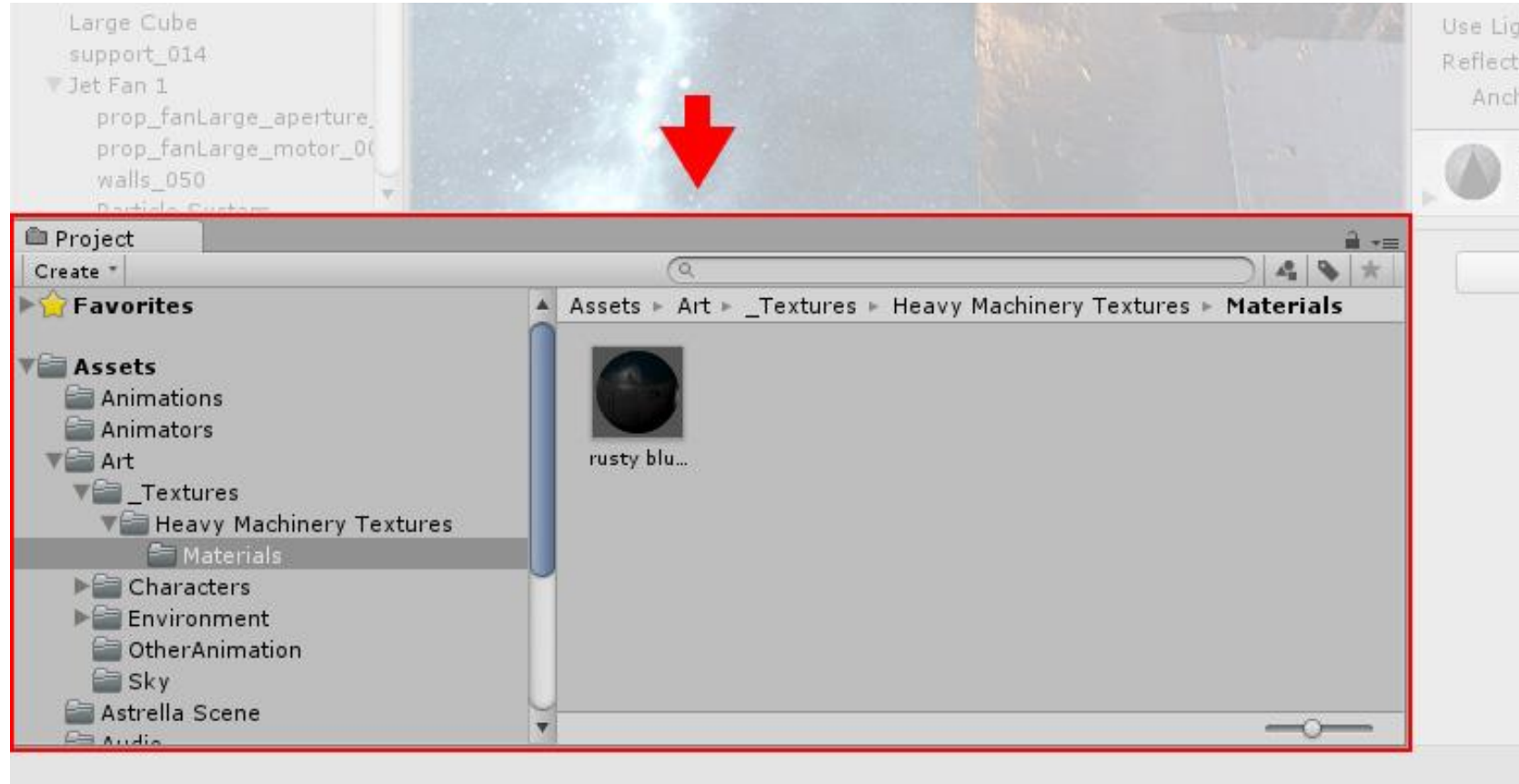


Unity : Projet

- Assets
- ProjectSettings

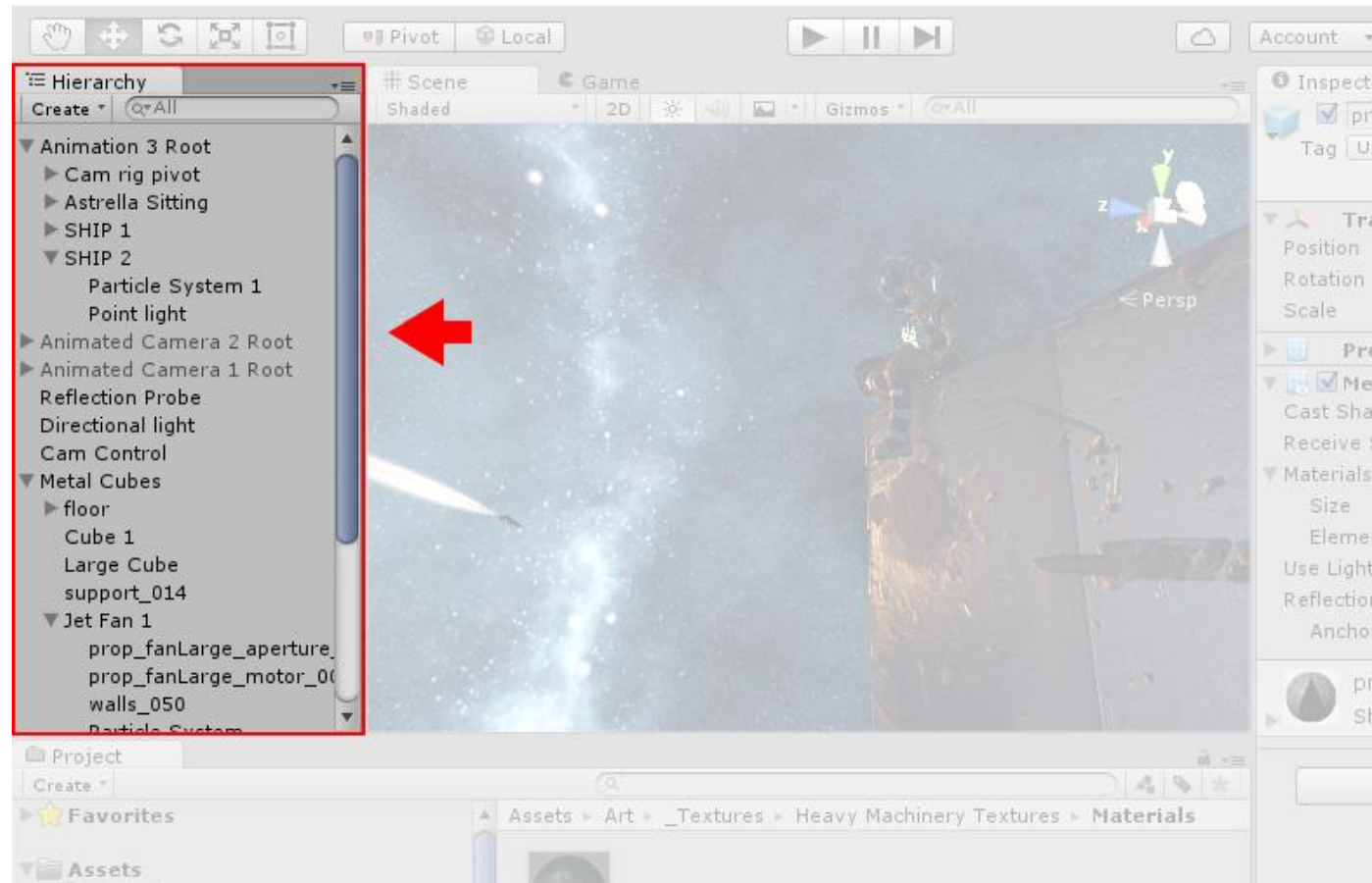


- .vscode
- Assets
- Library
- Logs
- Packages
- ProjectSettings
- Temp
- ExampleProjeKct.sln

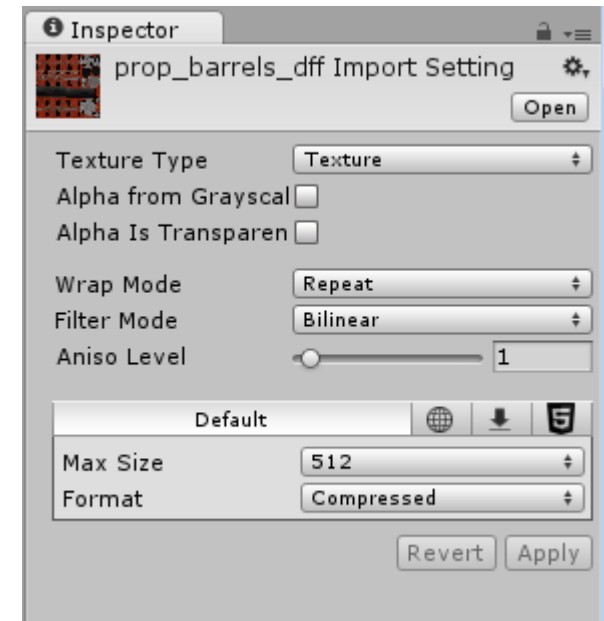
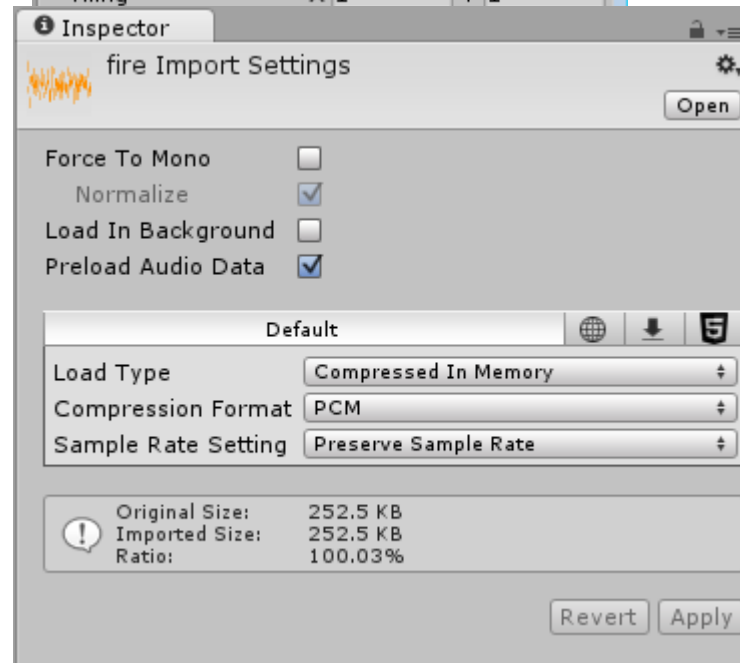
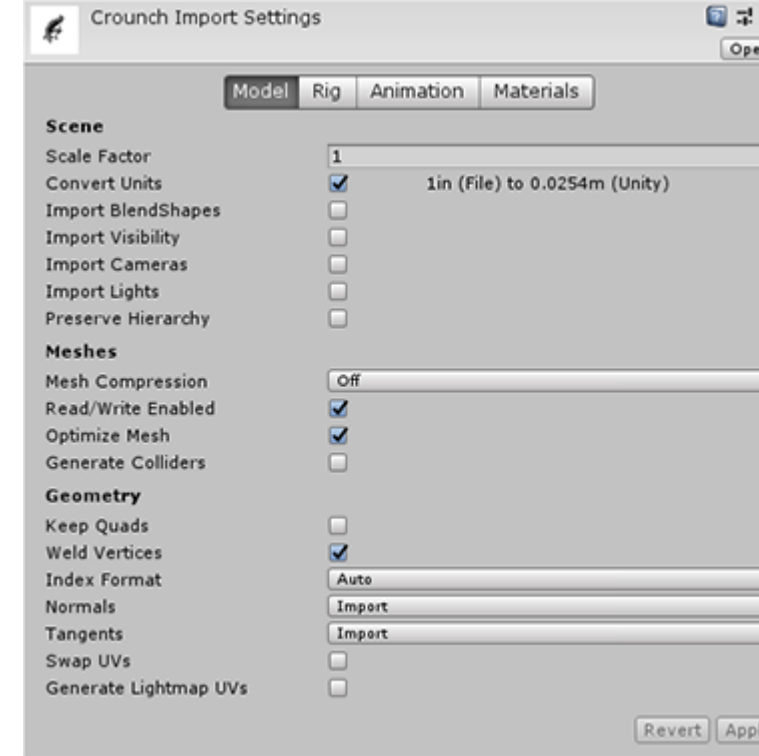
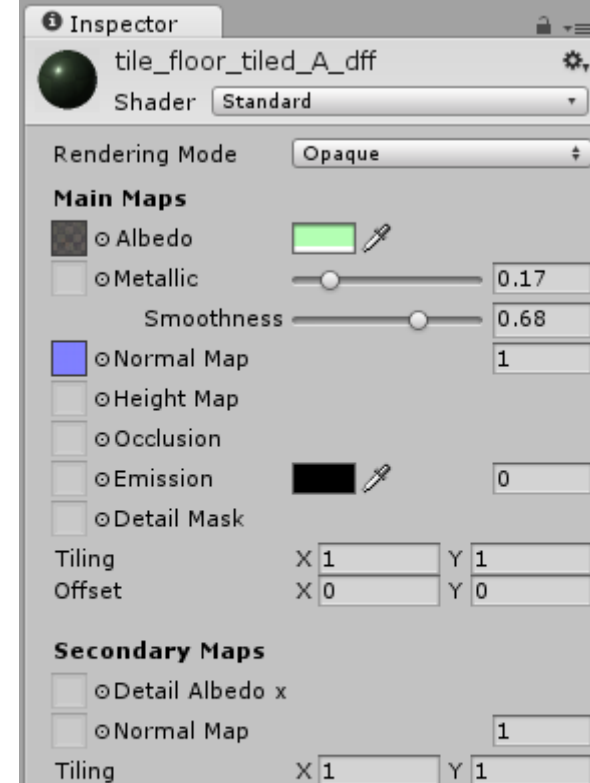
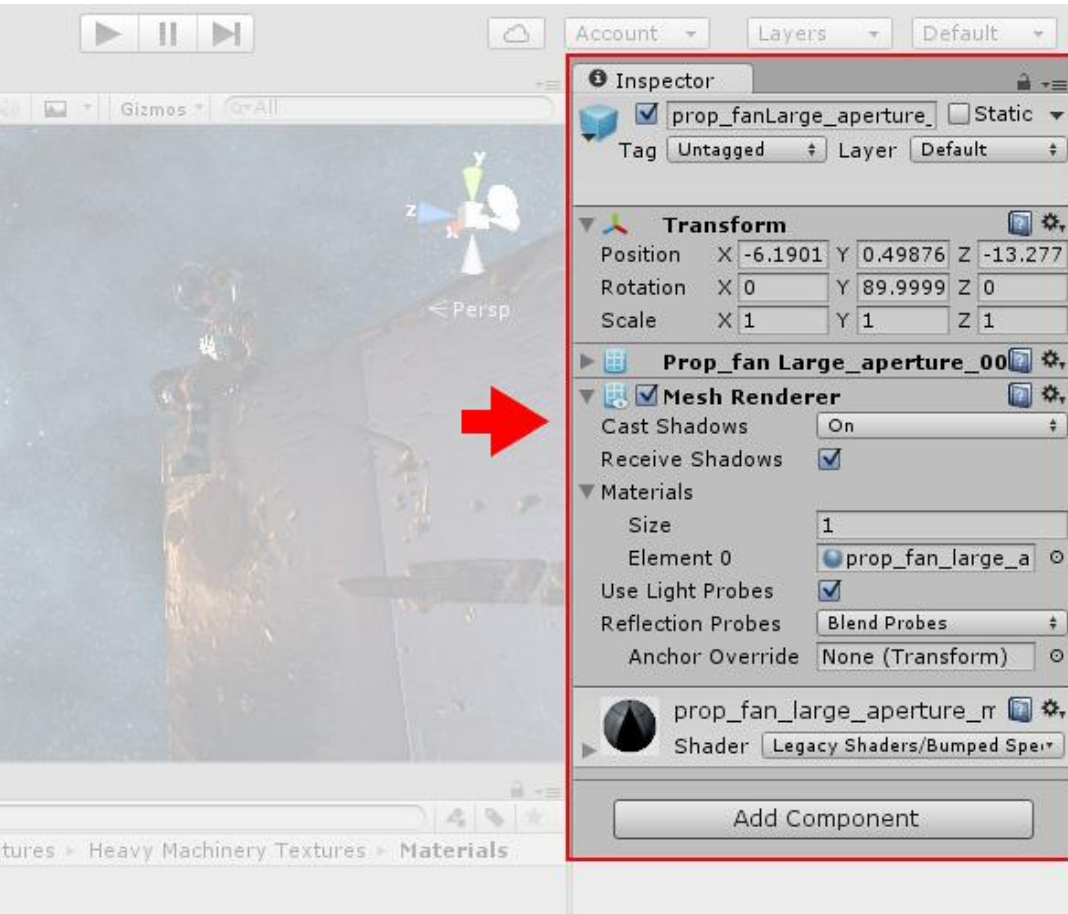


Unity : Hierarchy

- Gestion du graphe de scène

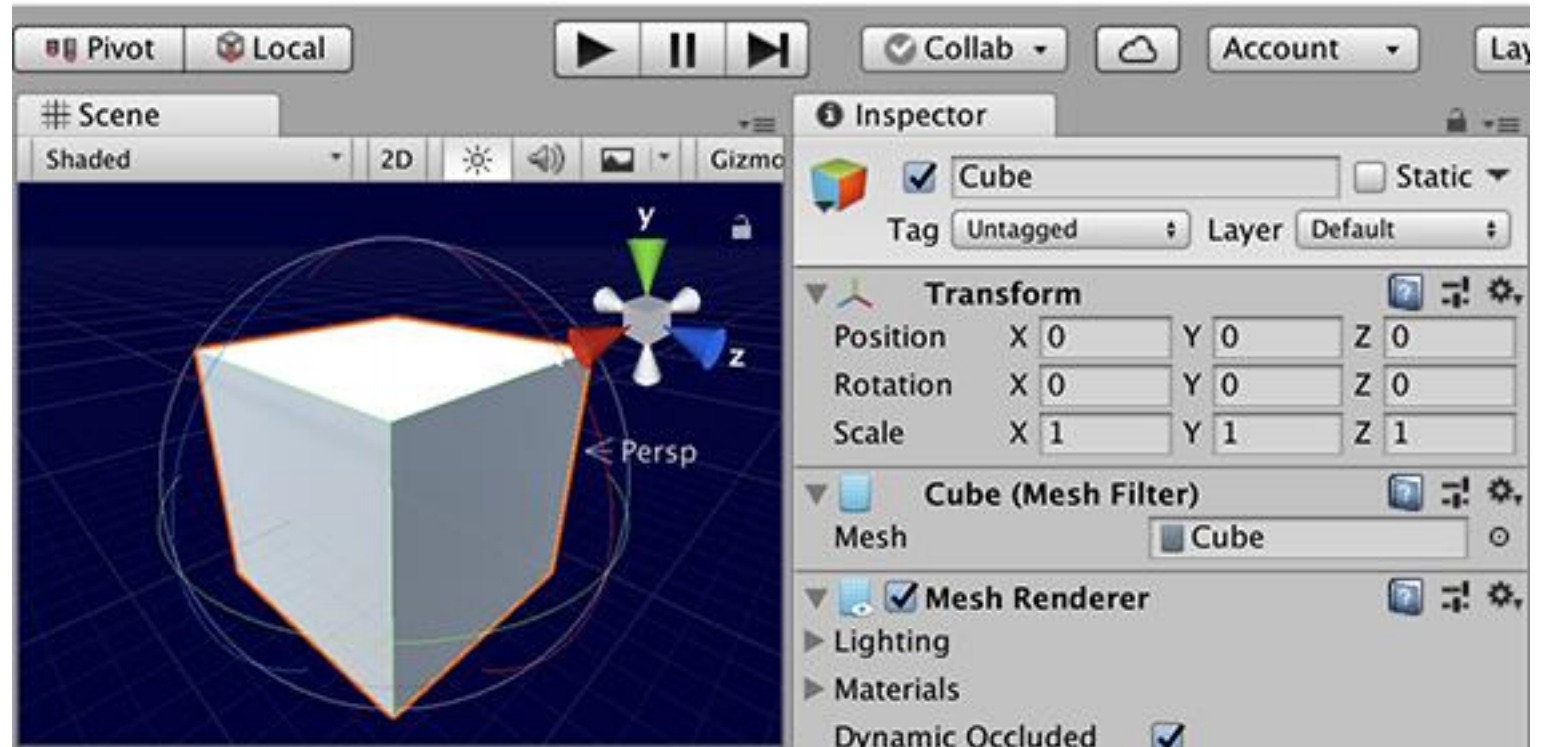


Unity : Inspecteur



Unity : GameObject

- Transform
- Ensemble de composants



Unity : Composant

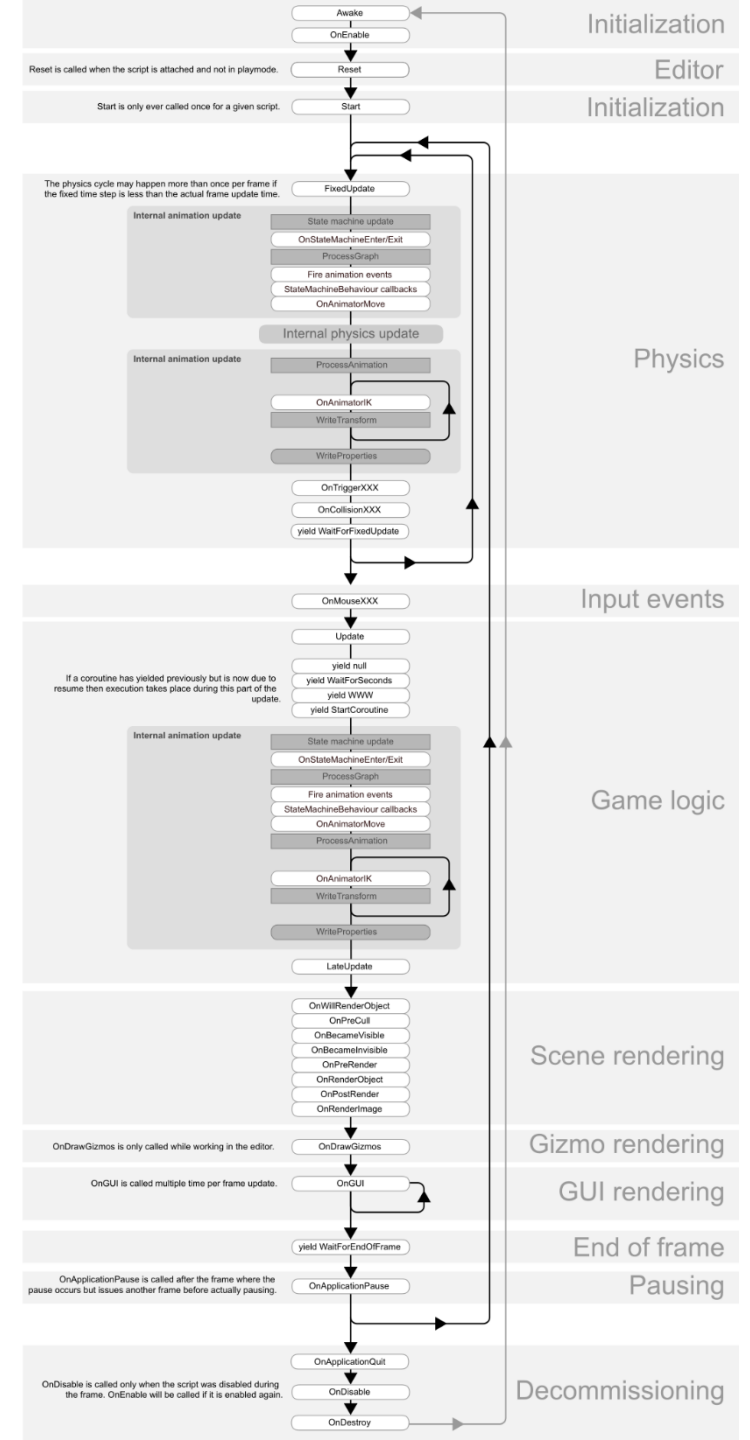
- Dérive de la classe MonoBehaviour



```
C# ExampleComponent.cs X
Assets > Scripts > C# ExampleComponent.cs
1  using System.Collections;
2  using System.Collections.Generic;
3  using UnityEngine;
4
5  public class ExampleComponent : MonoBehaviour
6  {
7      // Start is called before the first frame update
8      void Start()
9      {
10
11      }
12
13      // Update is called once per frame
14      void Update()
15      {
16
17      }
18  }
19
```

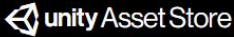
Unity : MonoBehaviour

- Fonctions callback
 - Start()
 - Update()
 - FixedUpdate()
 - LateUpdate()
 - OnGUI()



Unity Asset Store

<https://assetstore.unity.com/>




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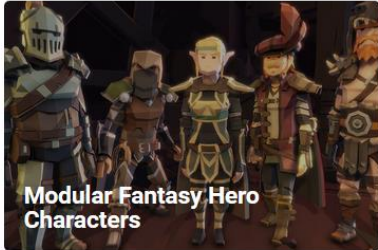
Sell Assets Feedback FAQ




MODULAR HD MEDIEVAL VILLAGE



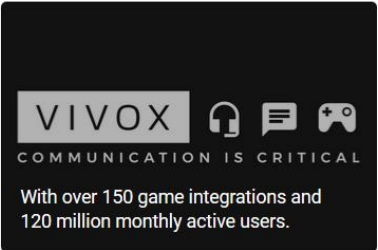
Octave3D-Level Design
The Essential Level Design Plugin for Unity!



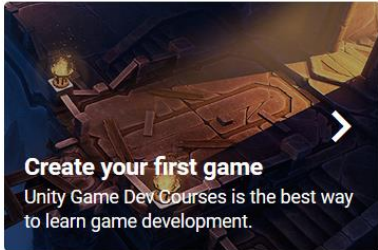
Modular Fantasy Hero Characters



VRChat picks
A curated list of assets that work great for VRChat creation!



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