



Co-funded by the
Erasmus+ Programme
of the European Union



University-Enterprises Cooperation
In Game Industry In **Ukraine**

561728-EPP-1-2015-1-ES-EPPKA2-CBHE-JP



Contents

What is Unity?

Workflow

Main interface

Scripting

Rendering

Physics

Animation

2D & 3D

Multiplatform

Examples



Introduction

Unity is a powerful cross-platform 3D engine and a user friendly development environment. Easy enough for the beginner and powerful enough for the expert; Unity should interest anybody who wants to easily create 3D games and applications for mobile, desktop, the web, and consoles. That's why I want to tell you about this one of the most popular game engine.

What is Unity?

Unity is a cross-platform game engine with a built-in Integrated Development Environment developed by Unity Technologies. *It is used to develop video games for web plugins, desktop platforms, consoles and mobile devices.*

Unity 1 launched onstage at Apple's Worldwide Developers Conference 2005 by David Helgason, Nicholas Francis, and Joachim Ante.

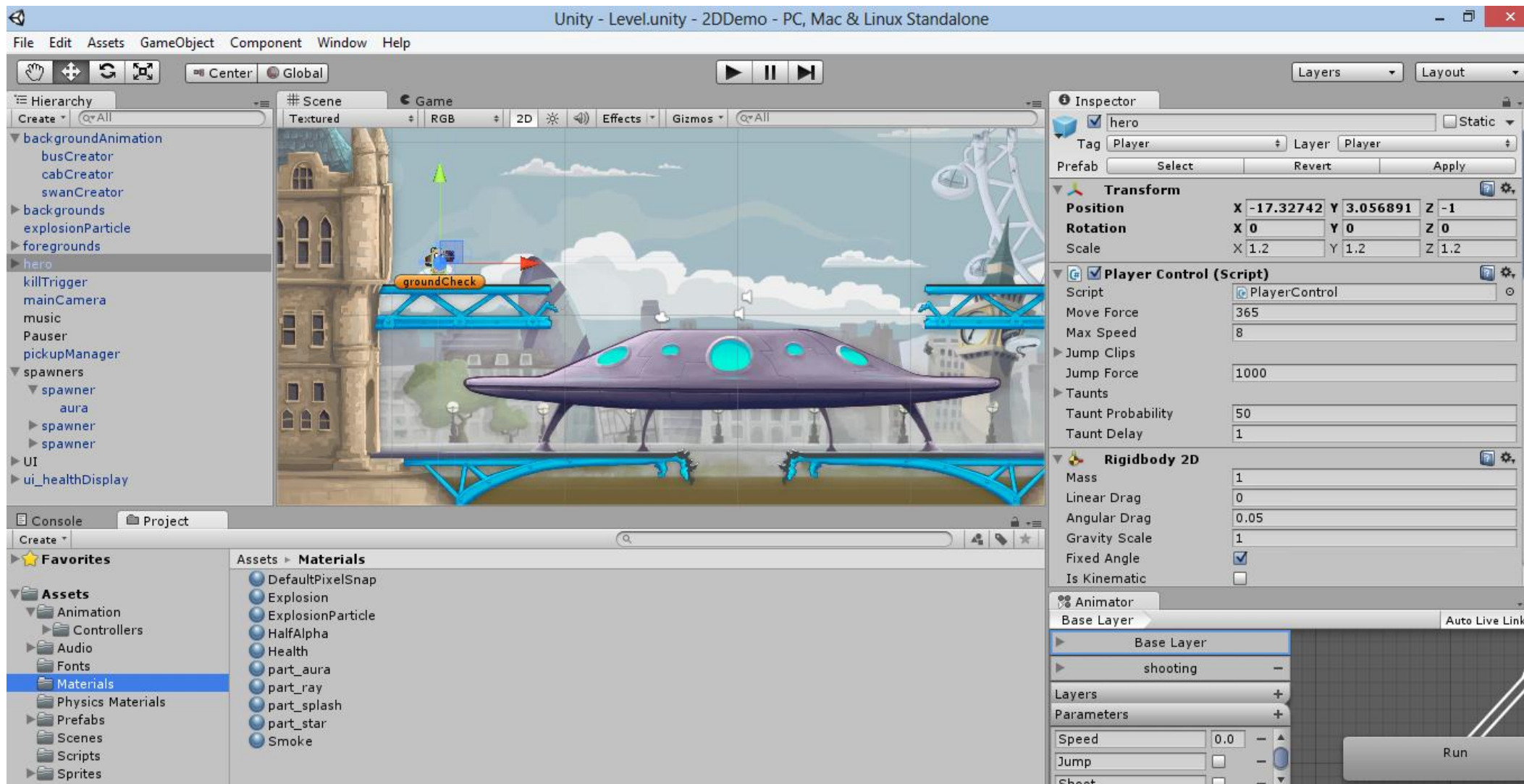


Workflow

- Unity is powerful, complete game development system
- Create 3D objects / scenes in Unity
 - Or import objects created in 3D modelling packages
- Use scripting to control animations / scene changes etc.
- Export to stand alone game, or web page component, or mobile app



Main interface



Unity actually is the union of

- (1) a **game engine**, that allows game created to run (hence to be played) in different environments,
- (2) an application where the “visible pieces” of a game can be put together (the **IDE**) with a graphical preview and using a controlled “play it” function, and
- (3) a **code editor**

Scripting

The game engine's scripting is built on Mono, the open-source implementation of the .NET Framework. Programmers can use:

- UnityScript (a custom language with syntax, referred to as JavaScript by the software)
- C#
- Boo (which has a Python-inspired syntax)





Rendering

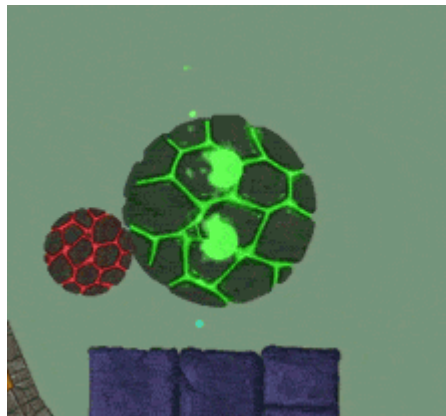
Unity supports art assets and file formats from 3ds Max, Maya, Blender, Adobe Photoshop and other graphics programs. These assets can be added to the game project, and managed through Unity's graphical user interface.





Physics

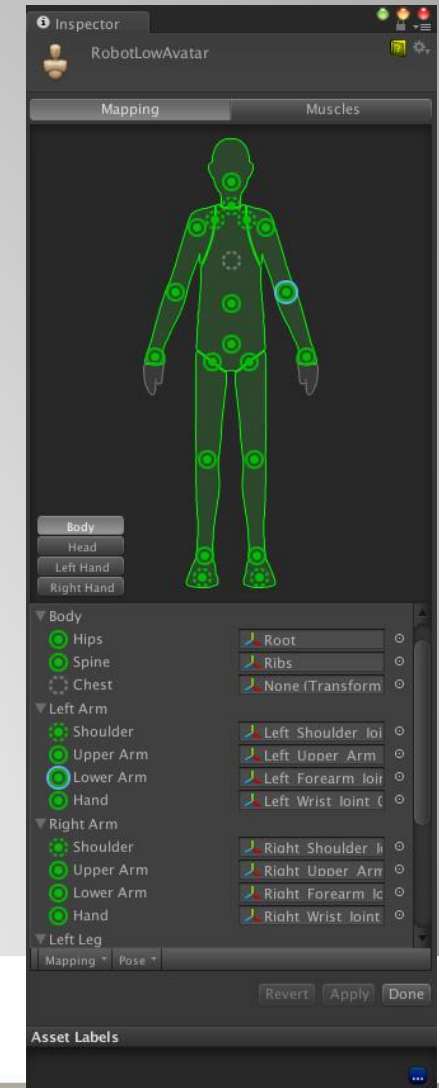
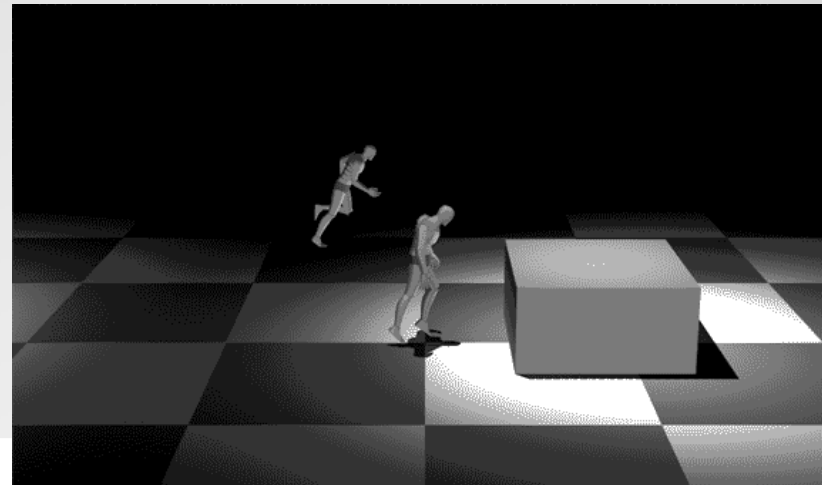
Unity also has built-in support for Nvidia's (formerly Ageia's) PhysX physics.



PhysX[™]
by **NVIDIA**

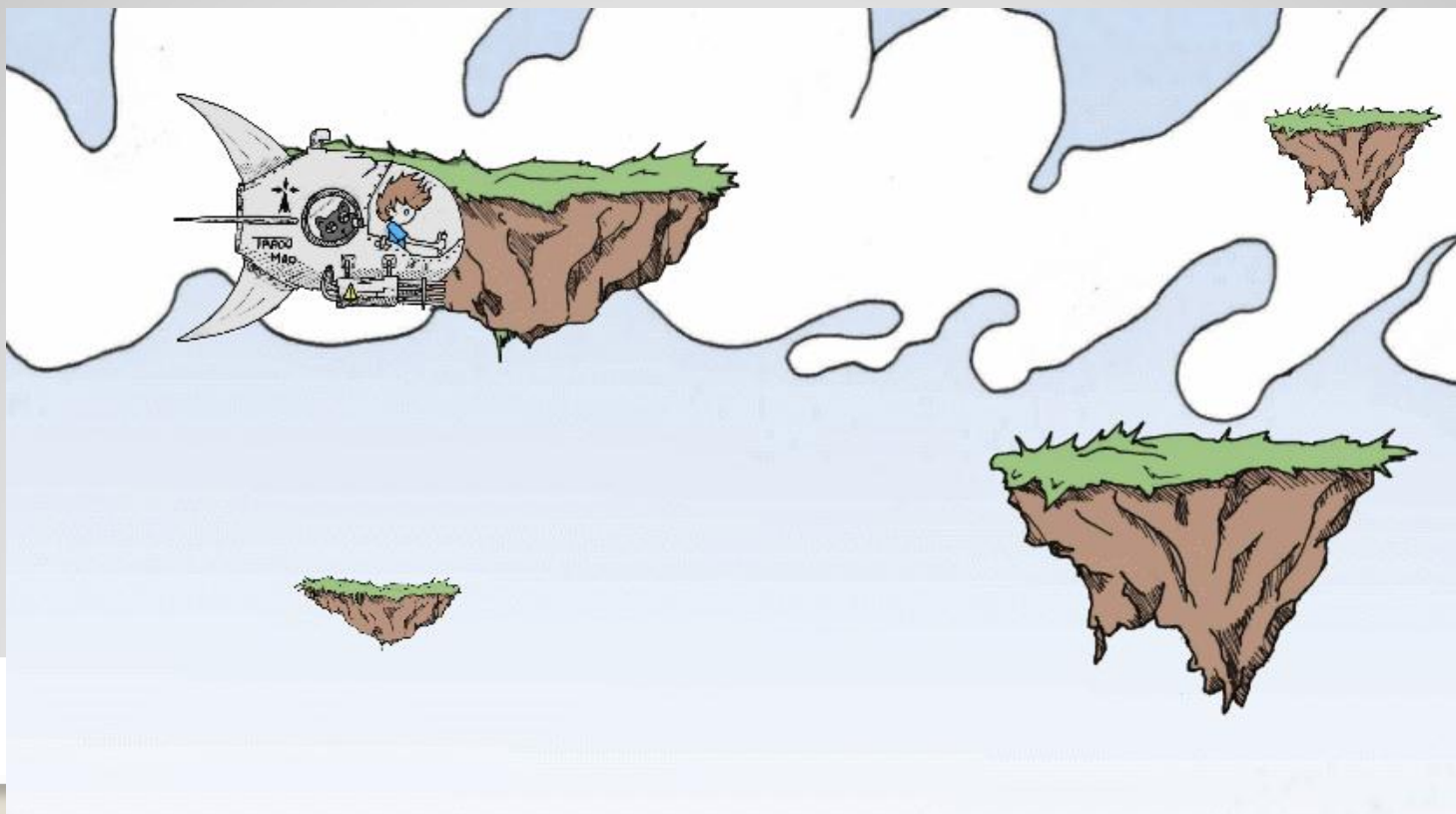
Animation

The retargeting rig can be set up on your character with just a few mouse clicks using automatic bone mapping and stance pose computing algorithms. The rig breaks down body motion into a set of muscle contractions and uses a mass model to compute body mass center and average body orientation for motion trajectory.



2D & 3D

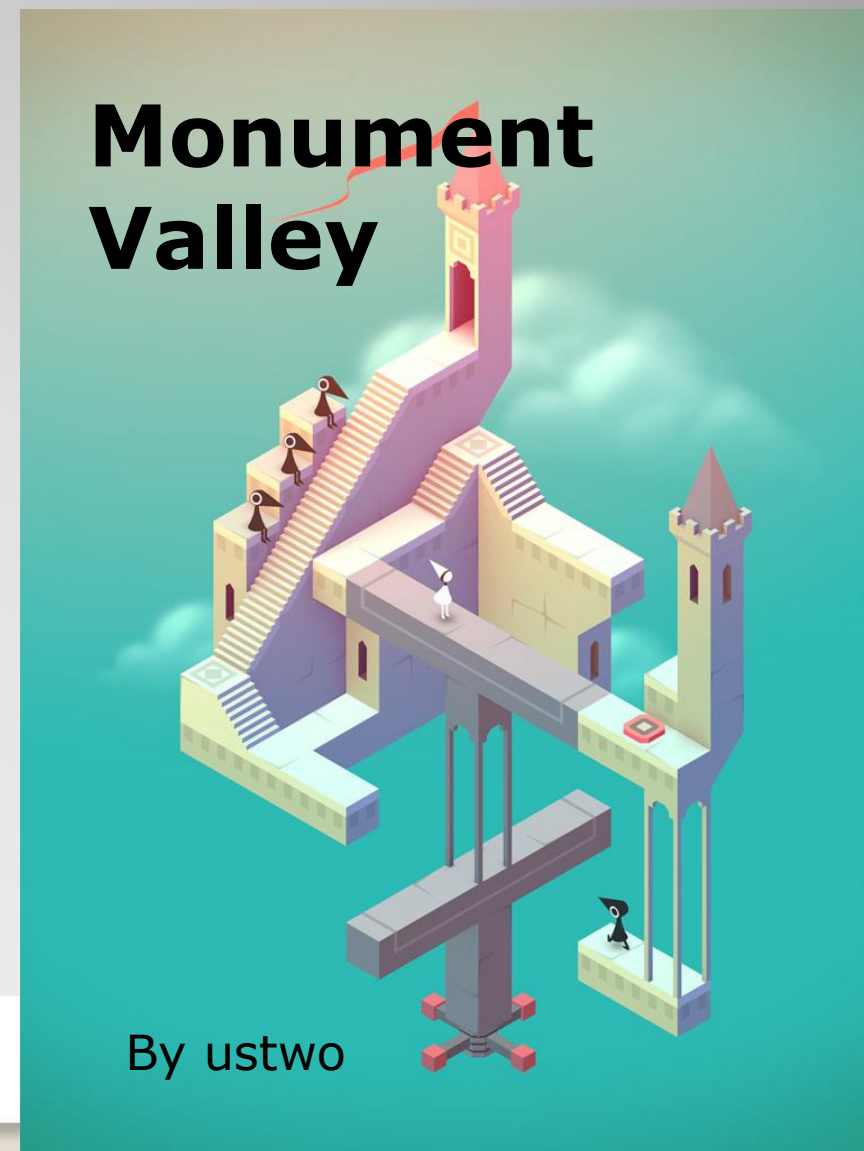
All scenes in Unity are 3D, with 2D games rendered using flat planes. This means it's incredibly easy to combine 3D and 2D elements. Simply switch your Scene view between 2D and 3D and make use of Perspective and Orthographic cameras.



Multiplatform

Unity supports deployment to multiple platforms. Within a project, developers have control over delivery to mobile devices, web browsers, desktops, and consoles.





Conclusion

So once you have the game design and all the required skills you can put together graphics, sounds, animations in Unity's IDE, write in the editor the code associated to the assets and then generate a playable application that runs in several different environments, as one of the features of Unity is that it is multi-platform, that is more or less the same game can run similarly on an iPad or on Windows. Because of these features Unity is a popular game engine in video game development.



References

[http://wikipedia.org/wiki/Unity_\(game_engine\)](http://wikipedia.org/wiki/Unity_(game_engine))

<http://unity3d.com>

<http://forum.unity3d.com>

<http://designagame.eu>