

EDV & Multimedia

Game Development

Game Engines

3D-Grafik I

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Game Development



Vorproduktion

Game Design Document, Technical Design Document, Concept Art, Project Plan, Finanzierungsplan, Prototyp

Produktion

Organisation der Workflows und Toolchains
Game Assets, Programmierung, Level bauen
Alpha, Beta, Release Candidate, Testing

Postproduktion

Marketing, Vertrieb, Support, Bilanz

Werkzeuge

Assets

3D-Grafik

2D-Grafik

Audio

Level

Level Editor

Objekte

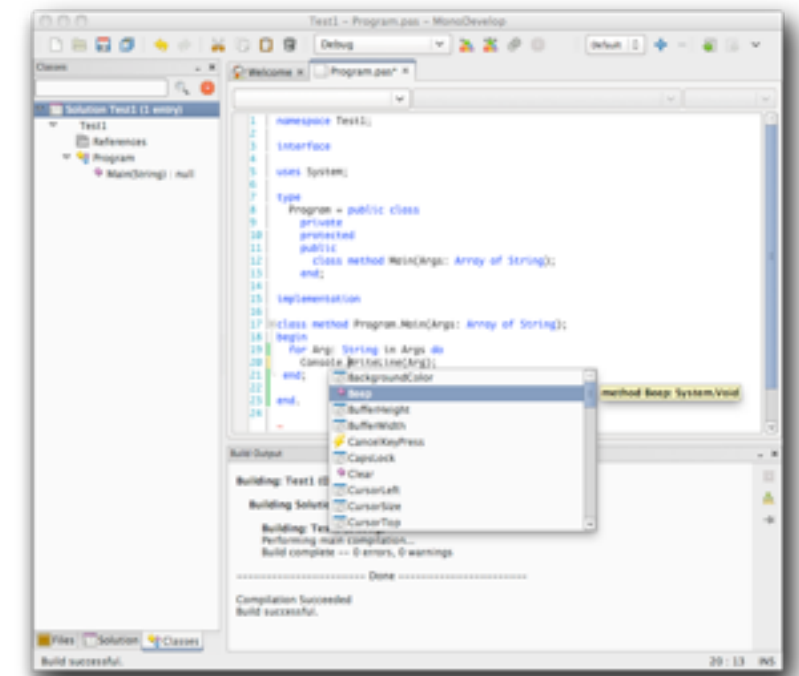
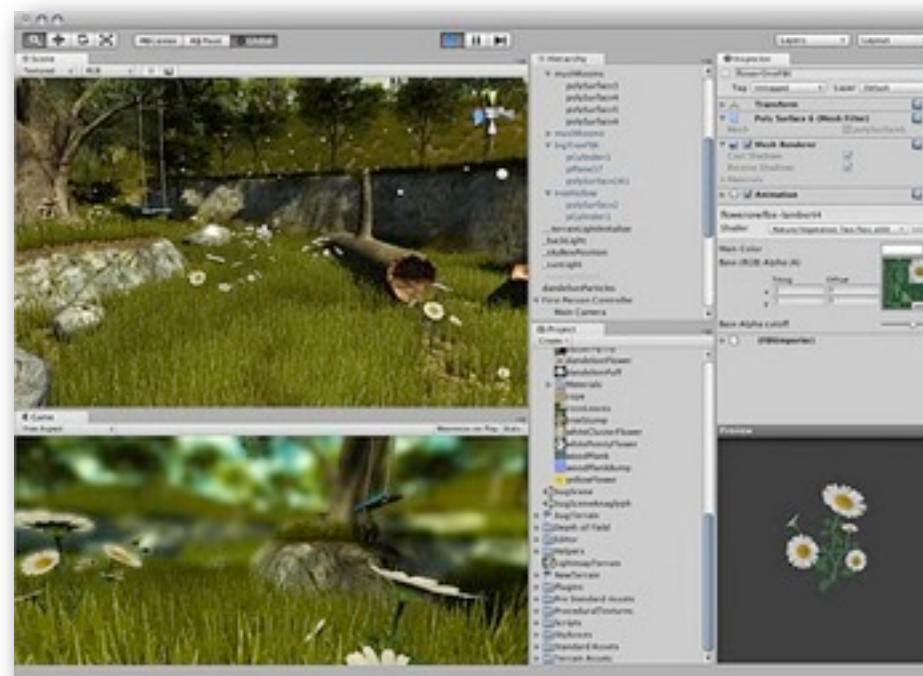
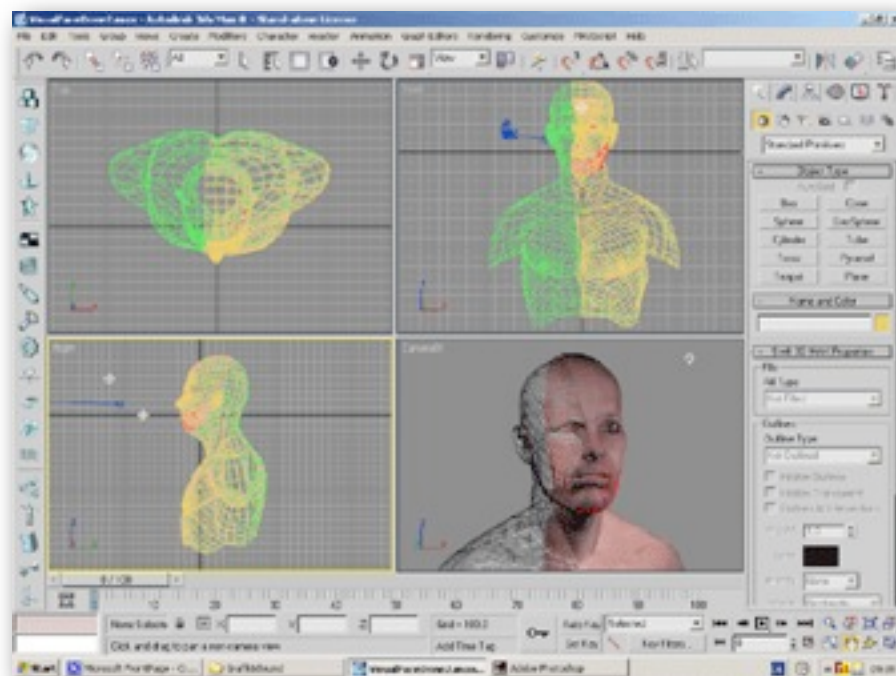
Komponenten

Programmierung

Programmierungsumgebung

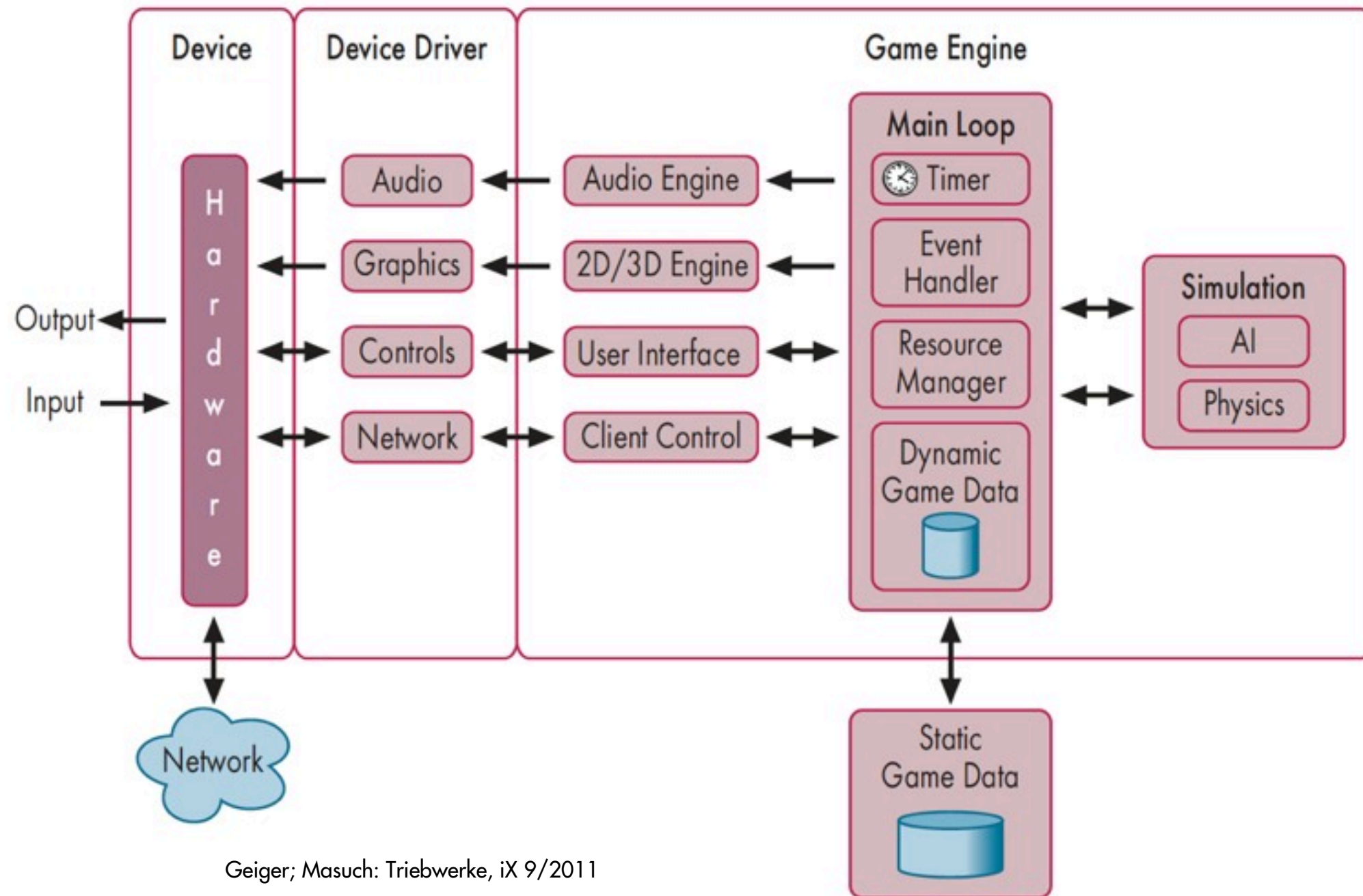
Libraries

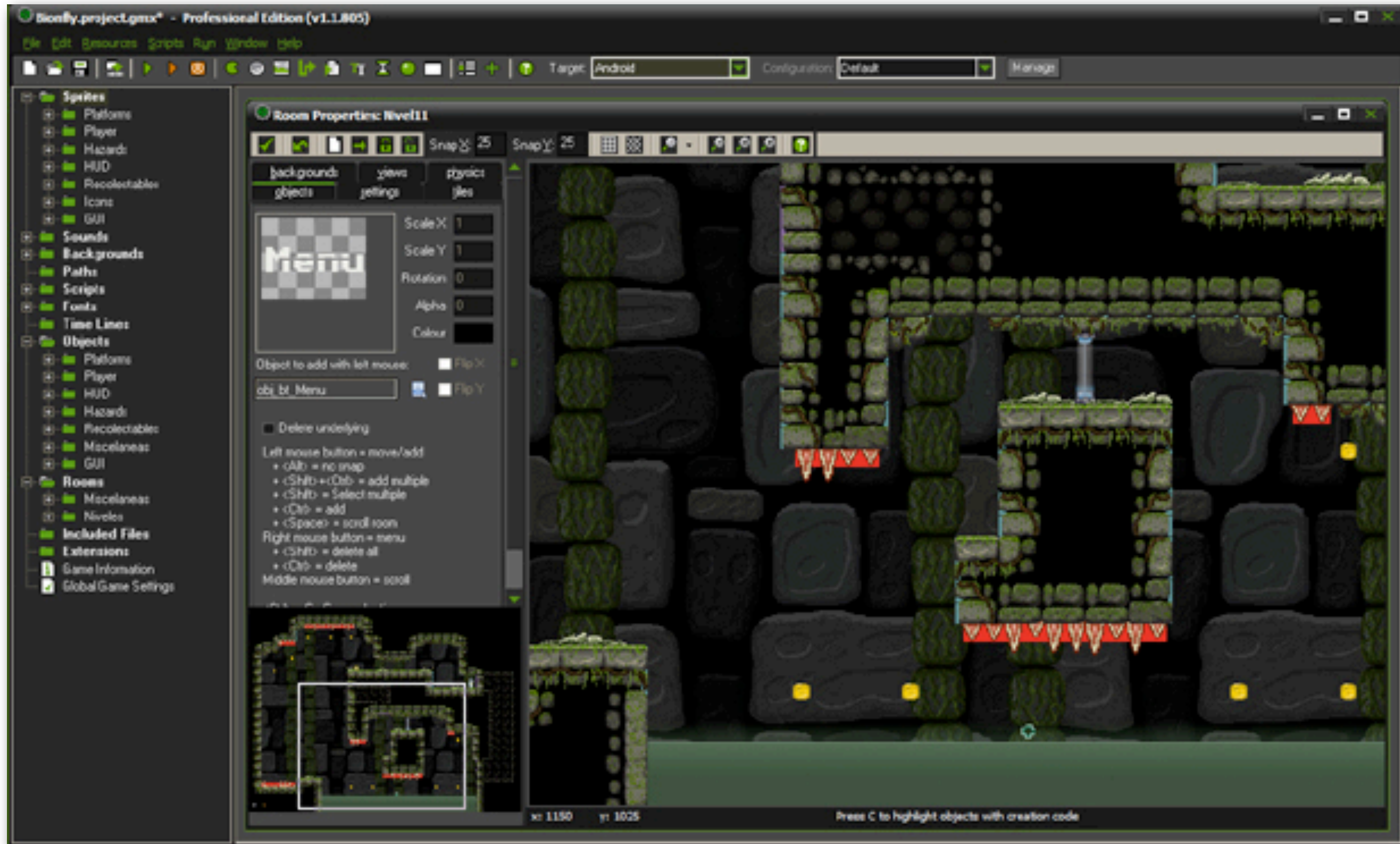
APIs



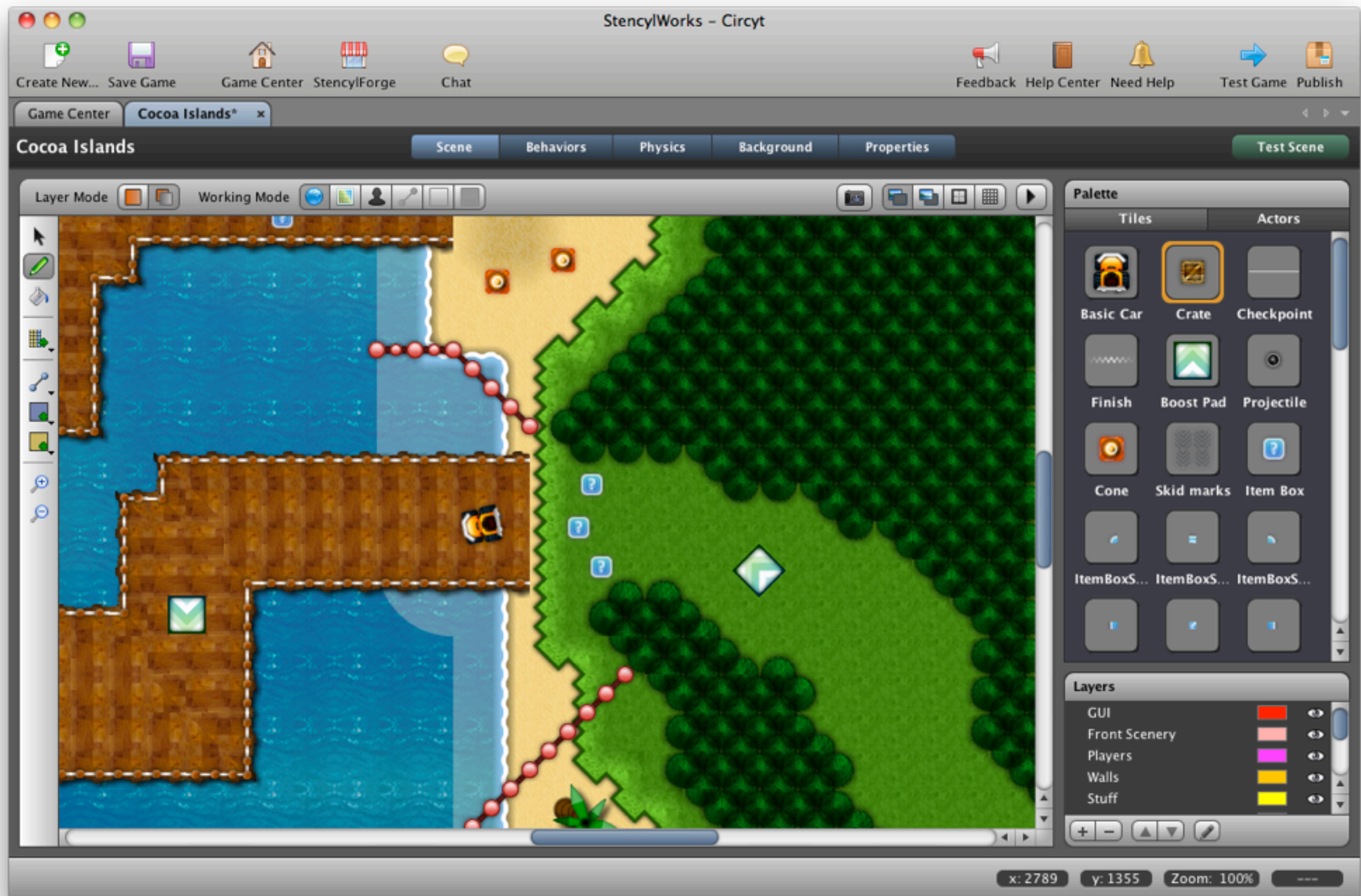
Game Engines

http://de.wikipedia.org/wiki/Liste_von_Spiel-Engines

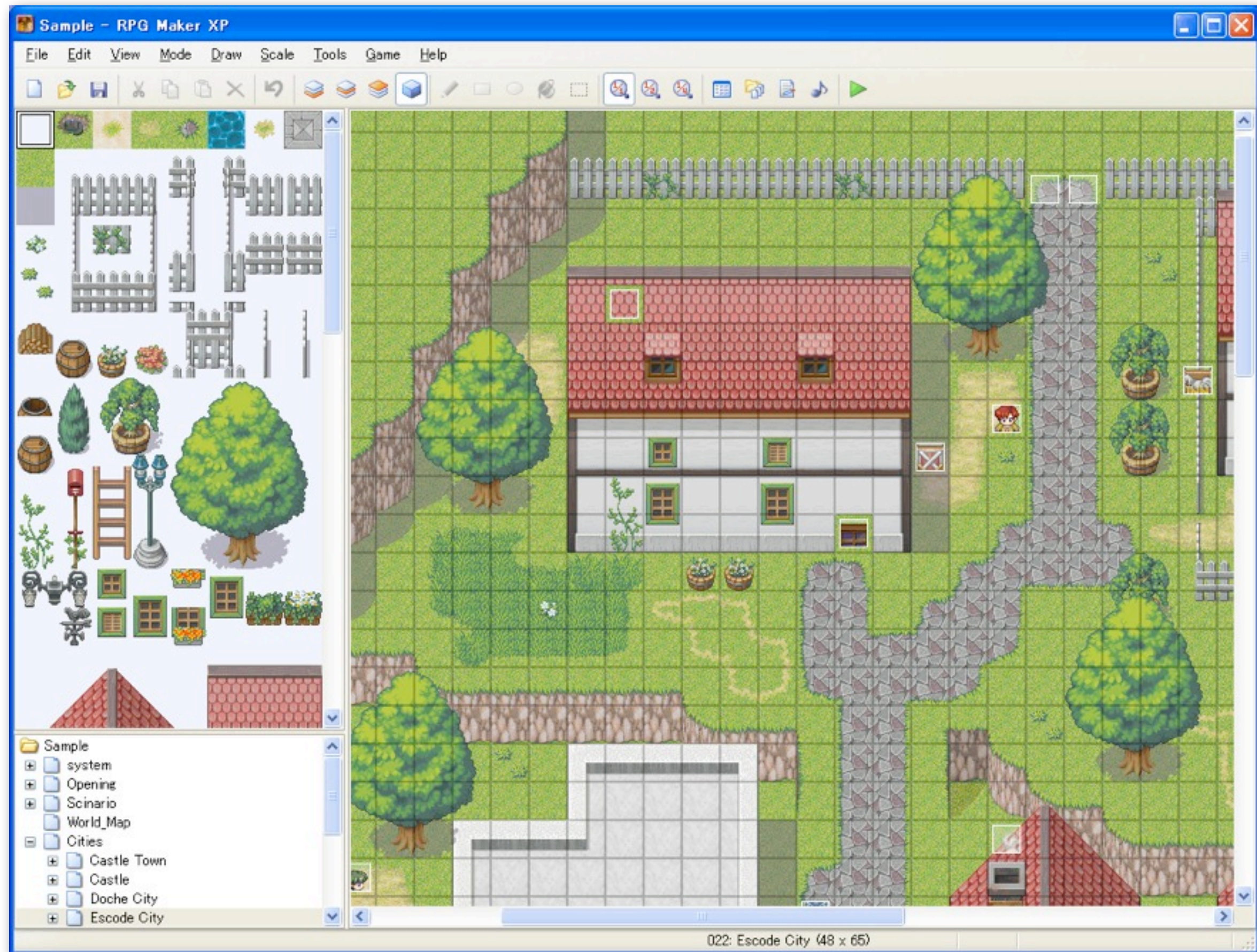




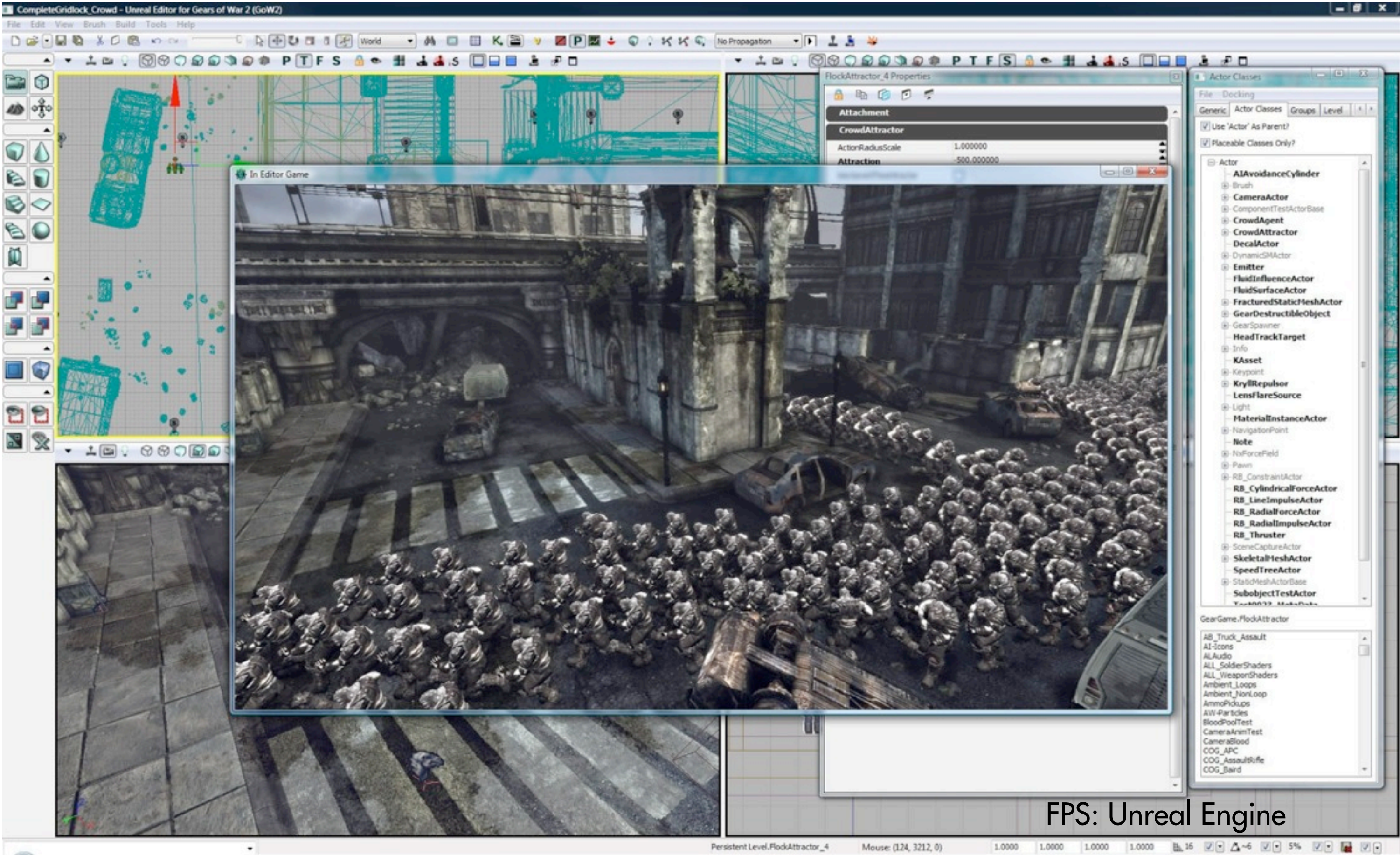
2D: Game Maker



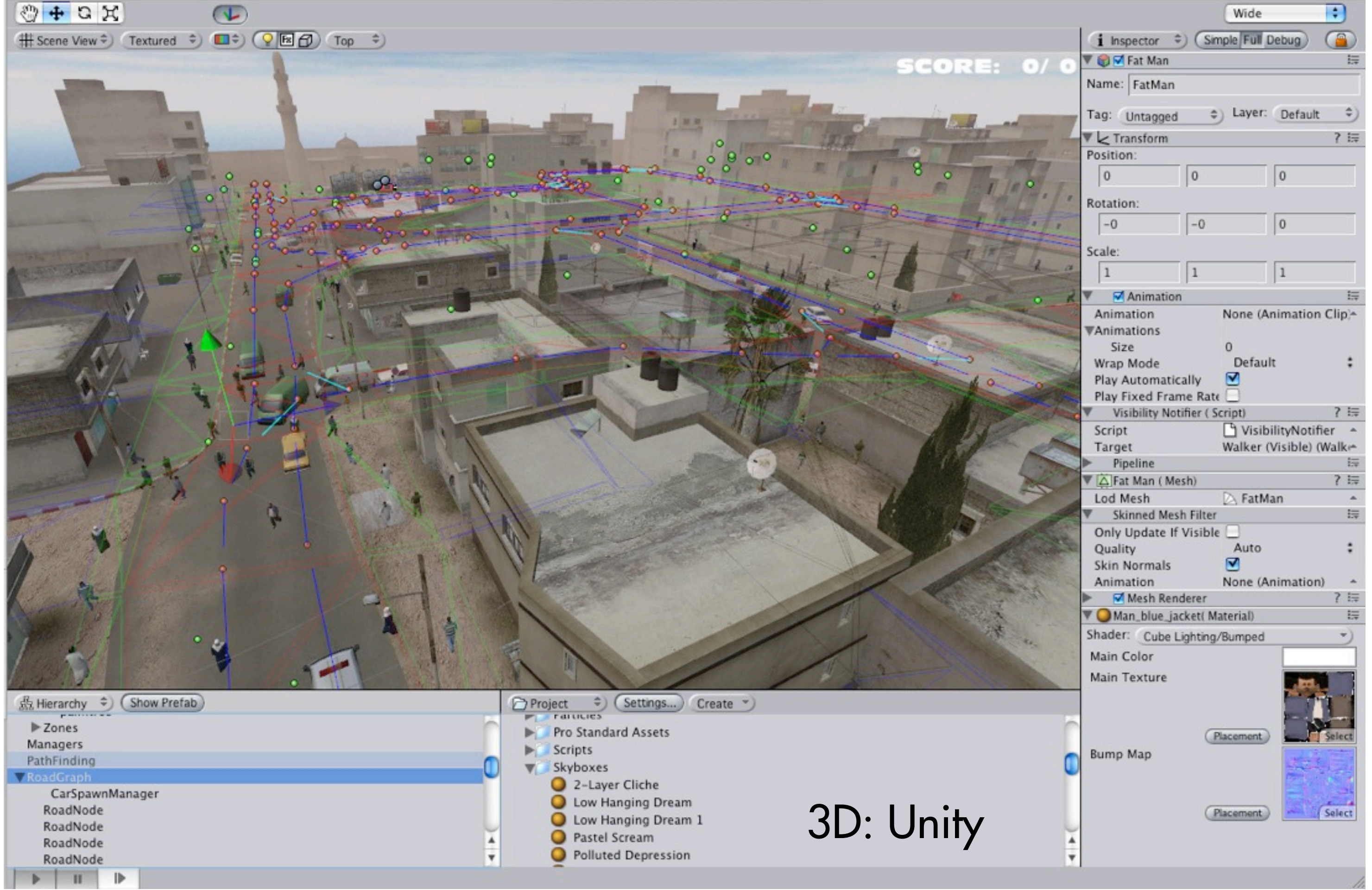
2D: Stencyl



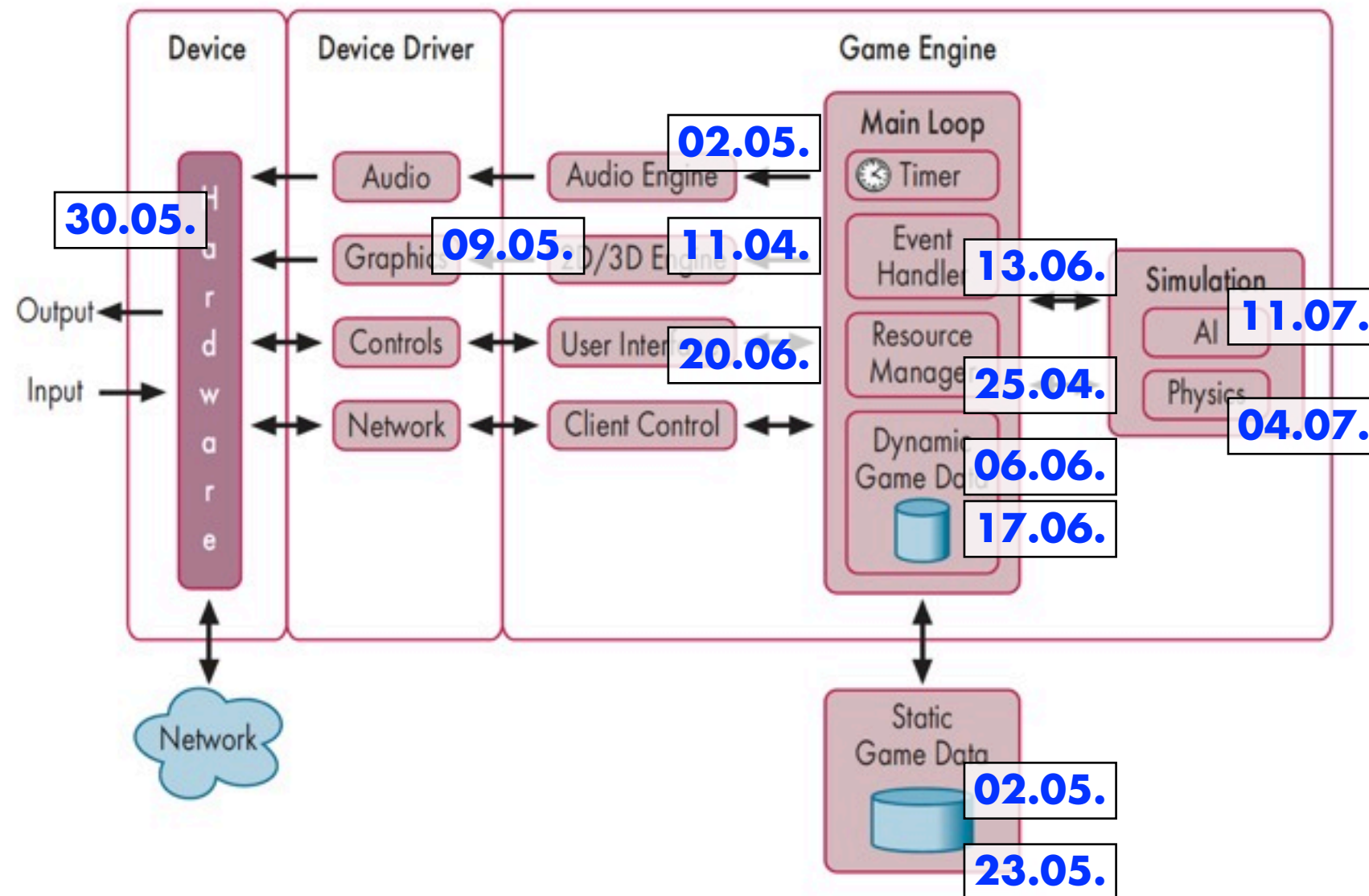
RPG Maker



FPS: Unreal Engine



Inhalte der Vorlesung



11.04. Game Engines und 3D-Grafik

18.04. -

25.04. Unity Basics

02.05. Komponenten I

09.05. Shader

16.05. -

23.05. Komponenten II

30.05. Rechnerarchitektur

06.06. Algorithmen und Datenstrukturen

13.06. Kollisionen

20.06. Graphical User Interfaces

27.06. Schleifen und Arrays

04.07. Physik

11.07. KI

Ziele der Veranstaltung

<http://www.transitionmathproject.org/partners/wcp/doc/bloom.pdf>

Am Ende des Semesters

verstehen Sie die Funktionsweise einer Spieleengine

beschreiben Sie Konzepte der Spieleentwicklung

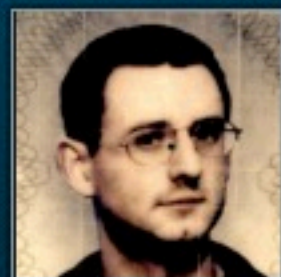
analysieren Sie Computerspiele aus Entwicklersicht

beurteilen Sie den Entwicklungsaufwand für kleinere Spielprojekte

gestalten Sie grundlegende Spielelemente

entwickeln Sie einfache Prototypen für eigene 3D-Spiele

übertragen Sie die Konzepte auf andere Engines



Group

0 | 4000

Rank

0 | 100

Unity



Available 9

In Progress 0

Completed 0



Name

XP

Avg Time

Rating

Category

Due Date



... und action!

15

-- mins

No Rating

Scene

No end date



QUESTS

0



REWARDS

1



GROUP



ANNOUNCEMENTS

0

GROUP MANAGER

QUEST BUILDER

REWARD BUILDER

QUEST APPROVER



3D-Objekt importieren

20

-- mins

No Rating

Tool

No end date



Angry Bots

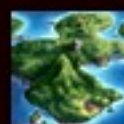
20

-- mins

No Rating

Tool

No end date



Booty Island

40

-- mins

No Rating

Design

No end date



Burn, Baby, burn

15

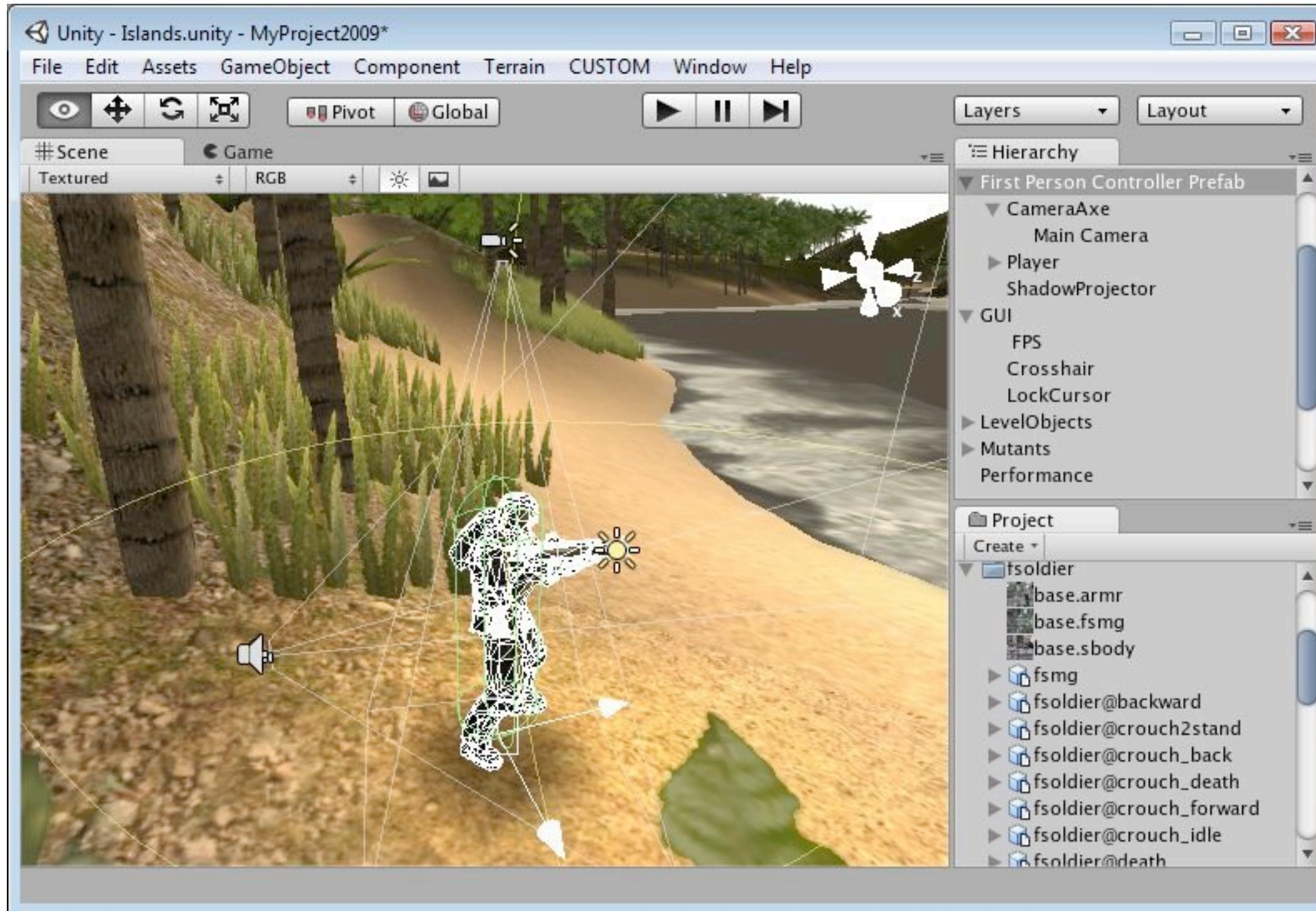
-- mins

No Rating

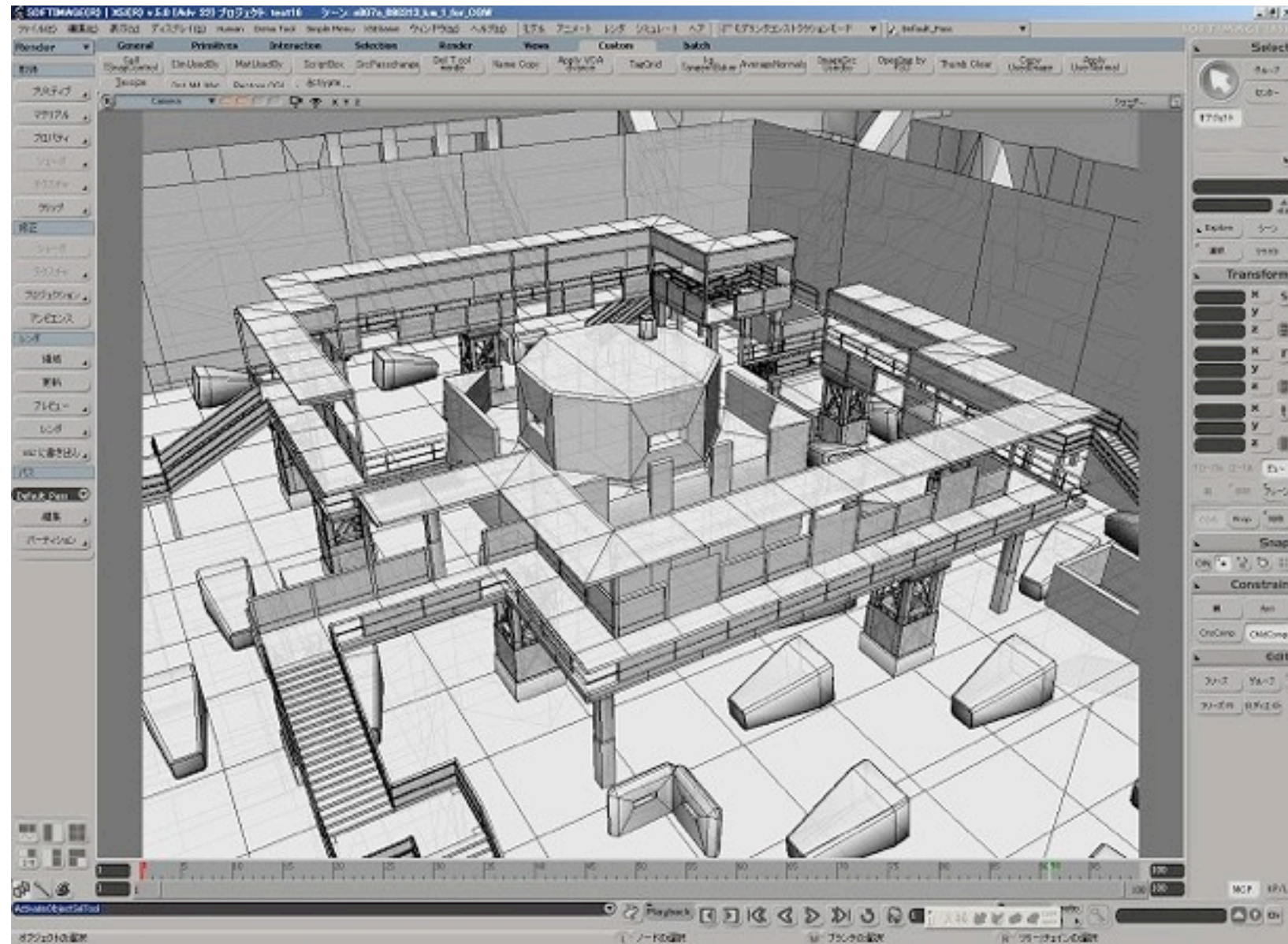
Tool

No end date

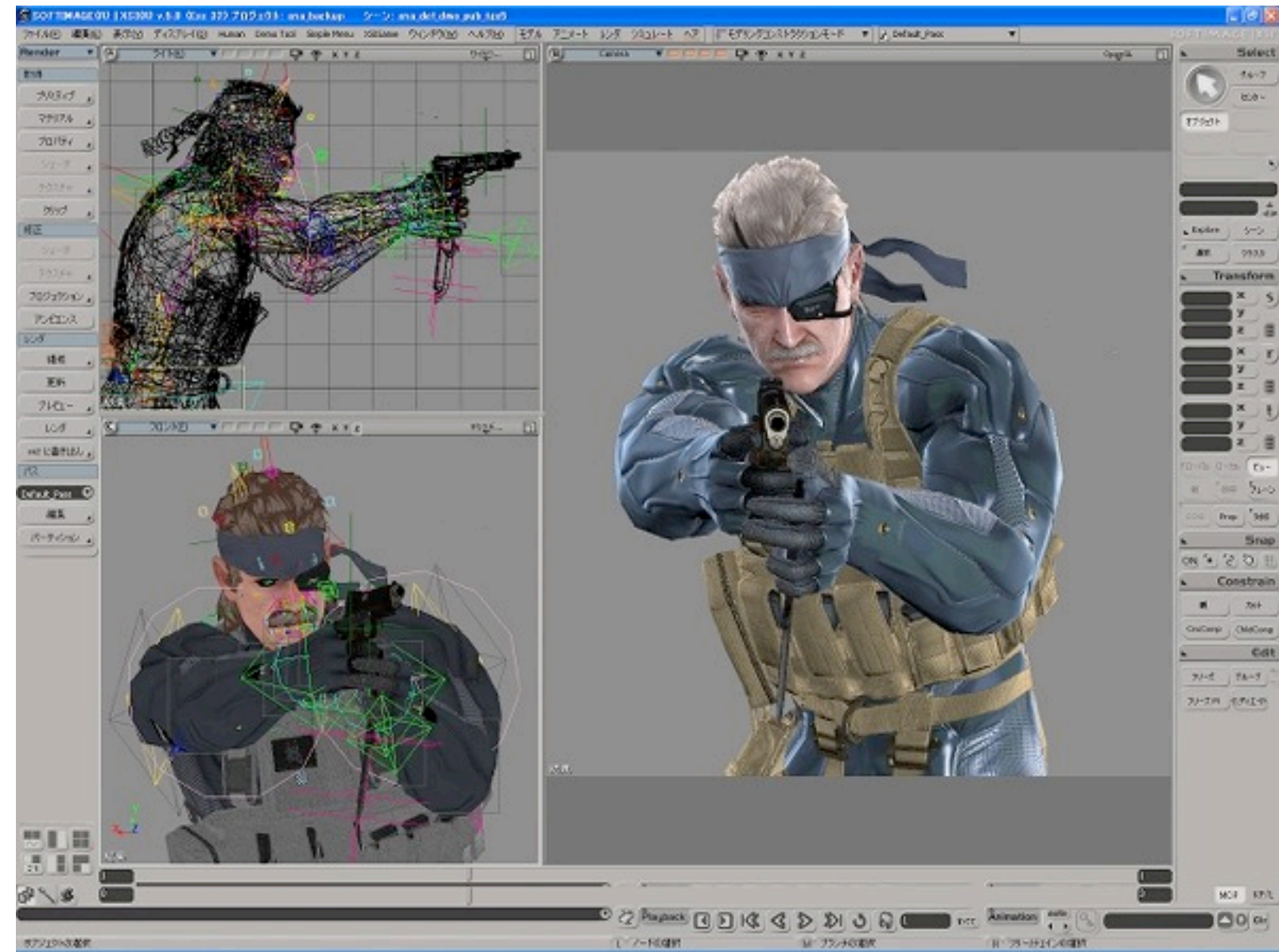
3D-Grafik-Subengine



3D Modellierung

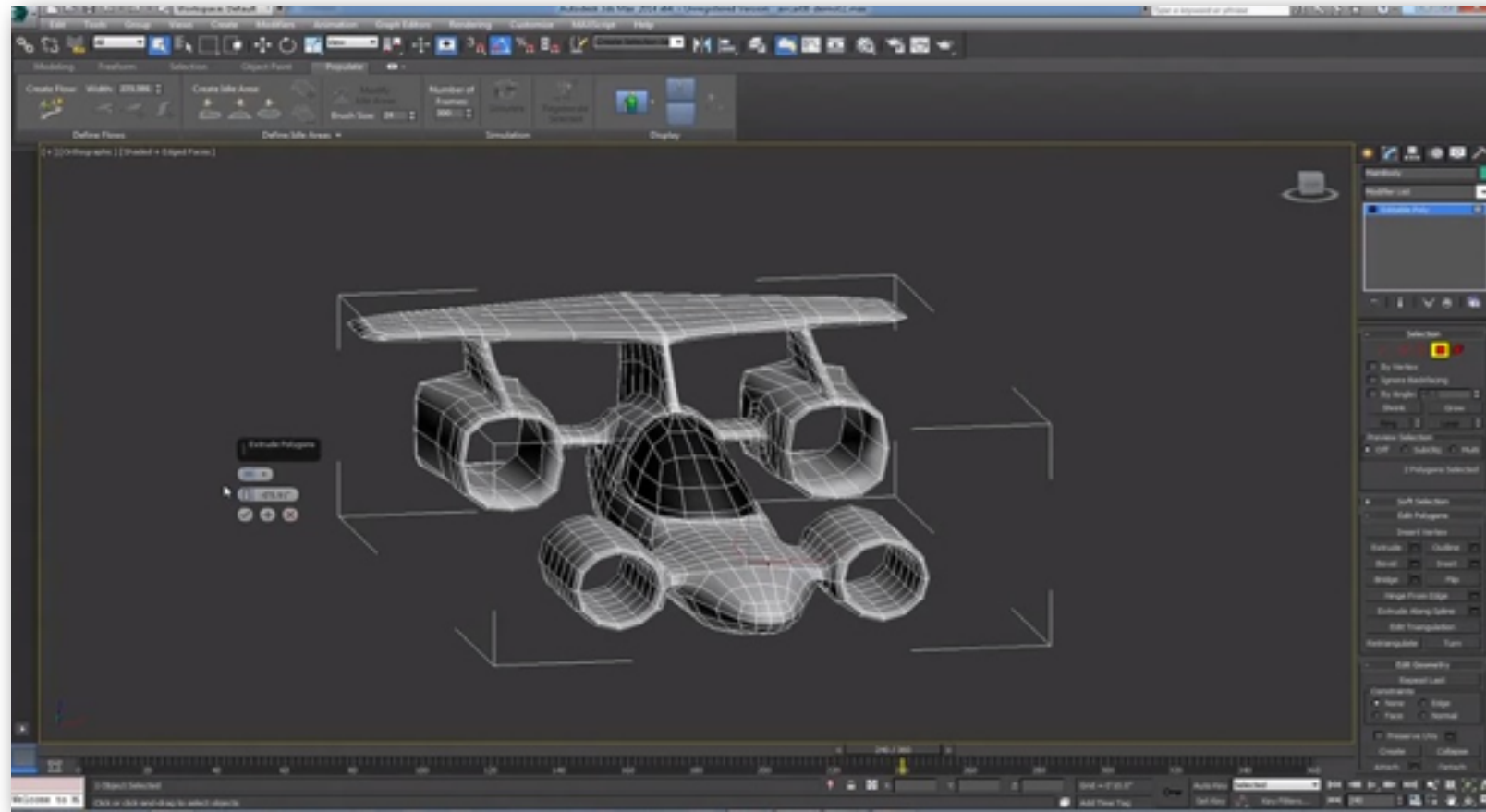


Scene

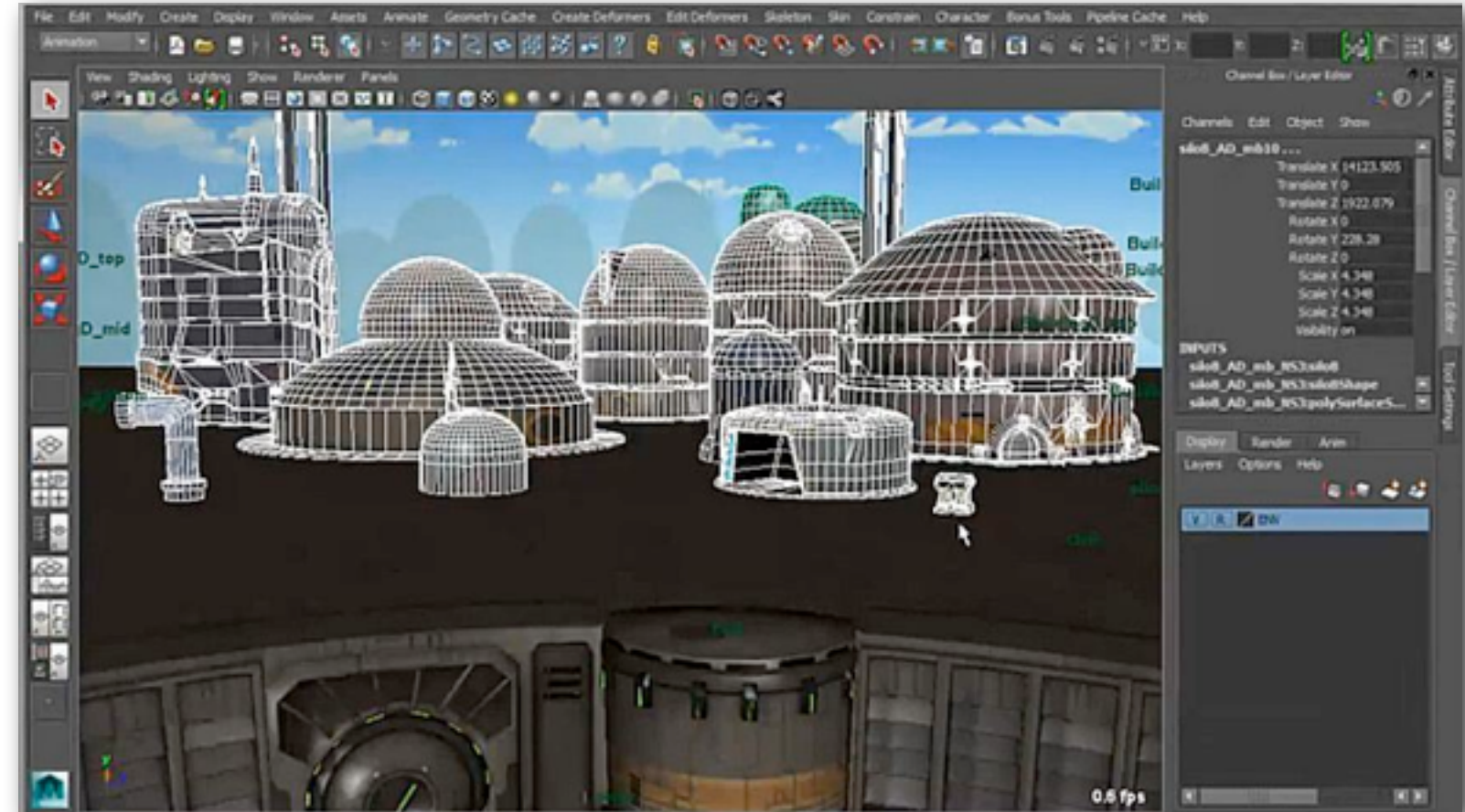


Character

Werkzeuge

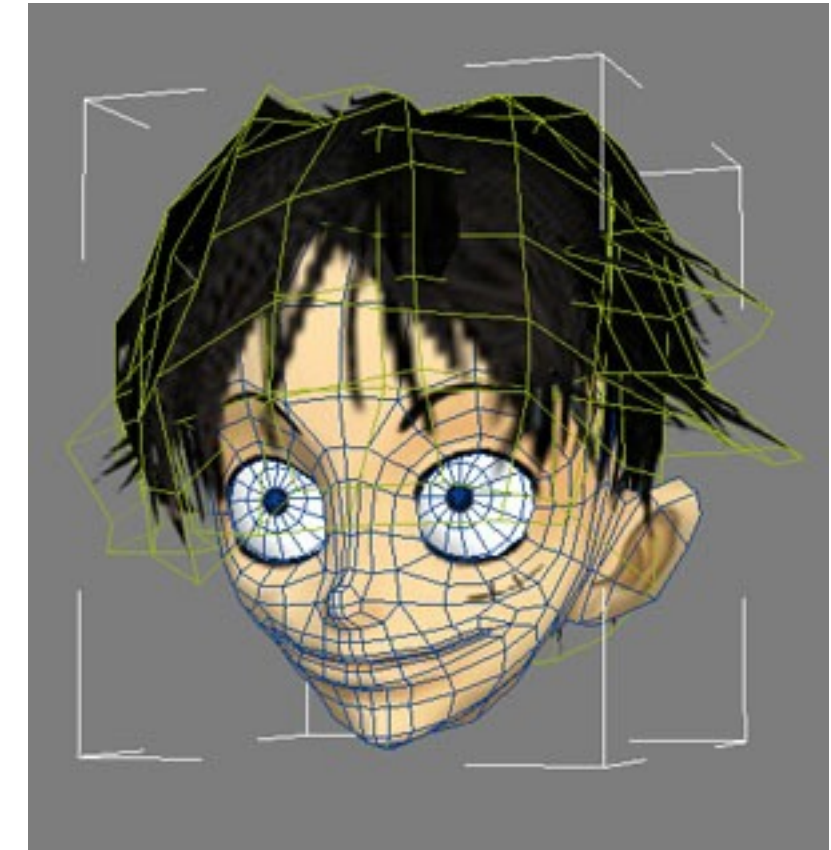
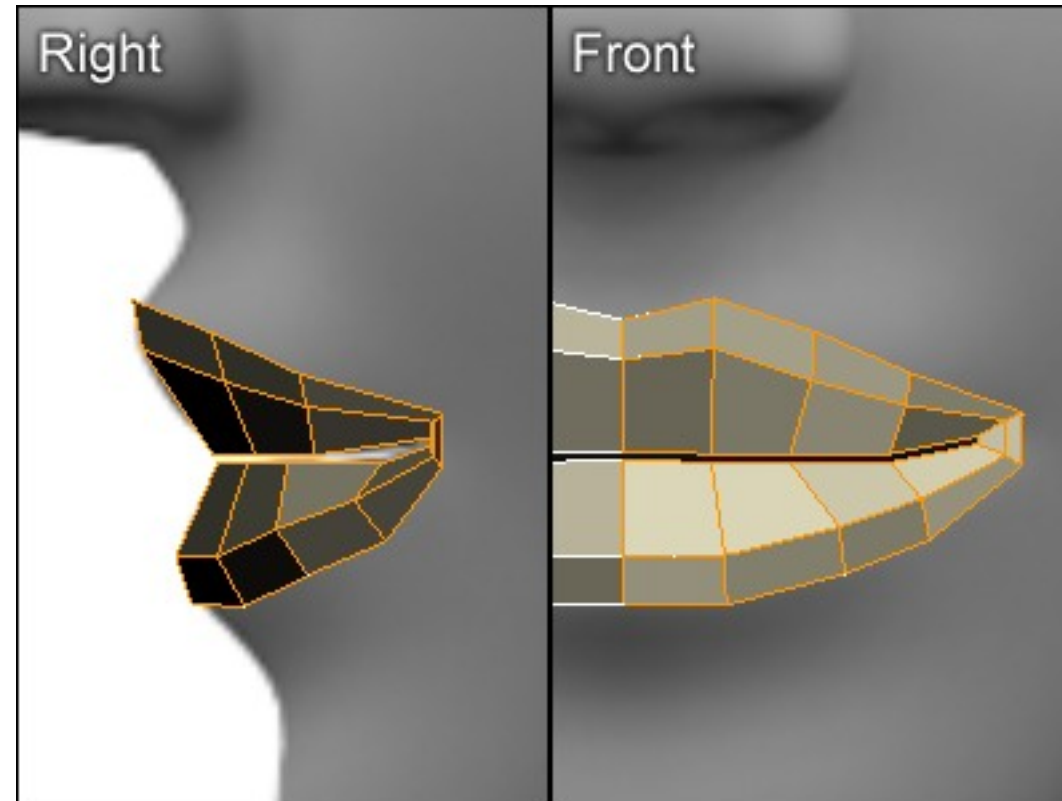
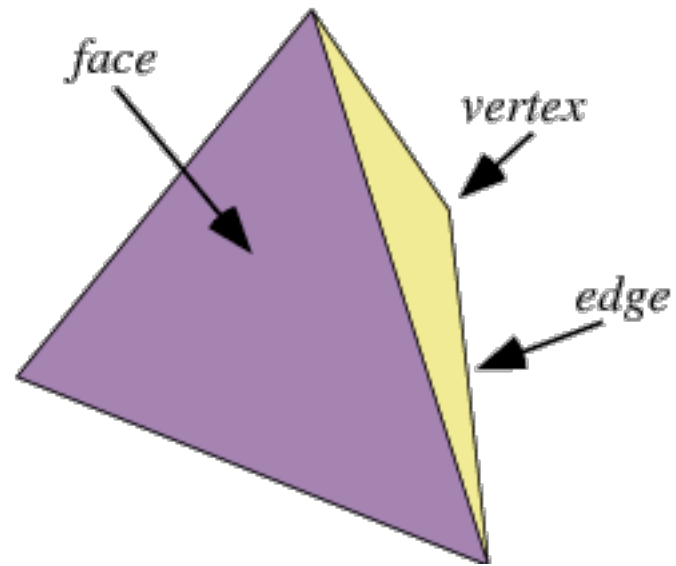


3ds Max



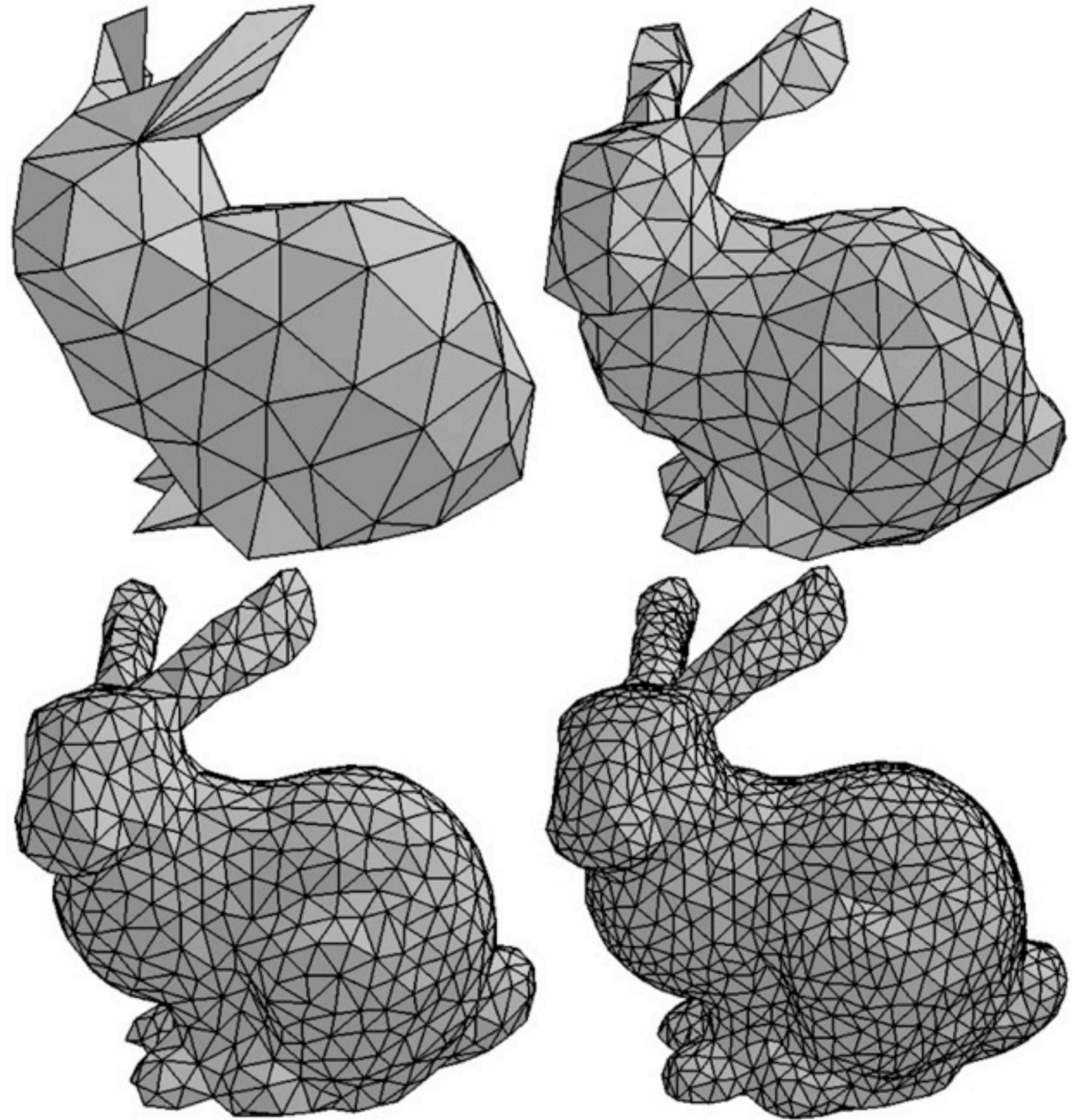
Maya

Vertex (Ecke), Edge (Kante), Polygon (Fläche)



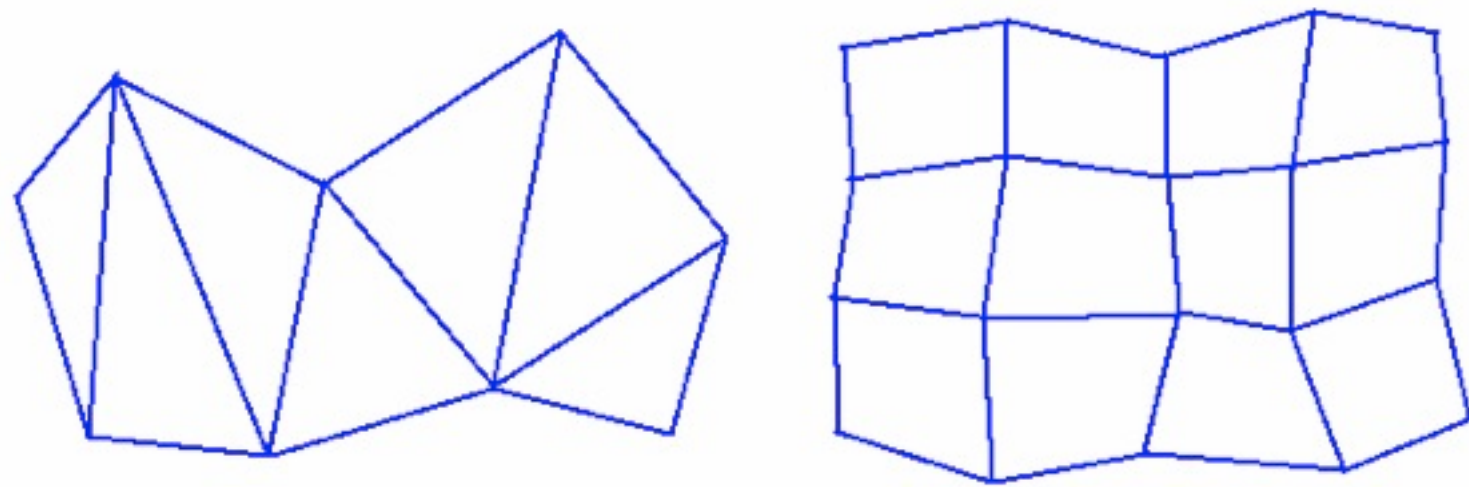
Mesh

Je mehr Polygone, desto aufwändiger die Berechnungen, desto weniger Objekte können gleichzeitig dargestellt werden.

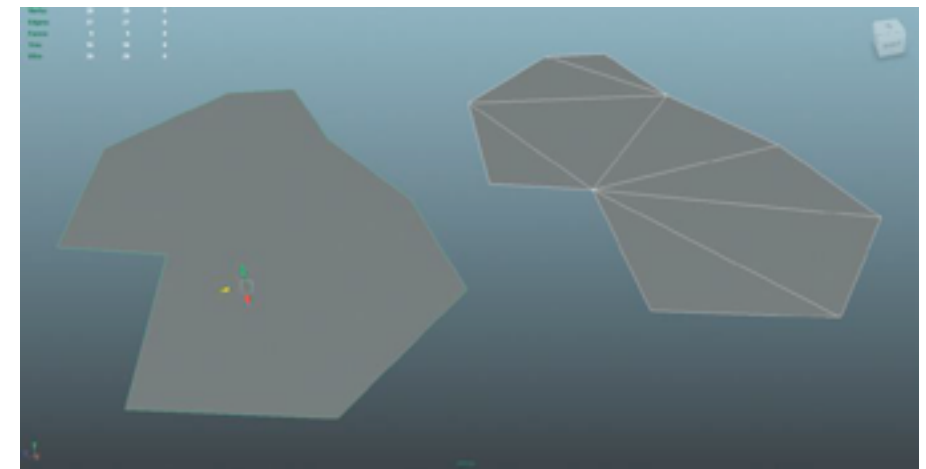


Topology: Tris, Quads, n-gons

Unity wandelt wie alle Game Engines jedes Mesh in Tris um. Eine kluge Topologie bei der Gestaltung vermeidet viele Probleme. Am Einfachsten sind Quads, sie sind handlich in der Modellierung und leicht in Tris umwandelbar.

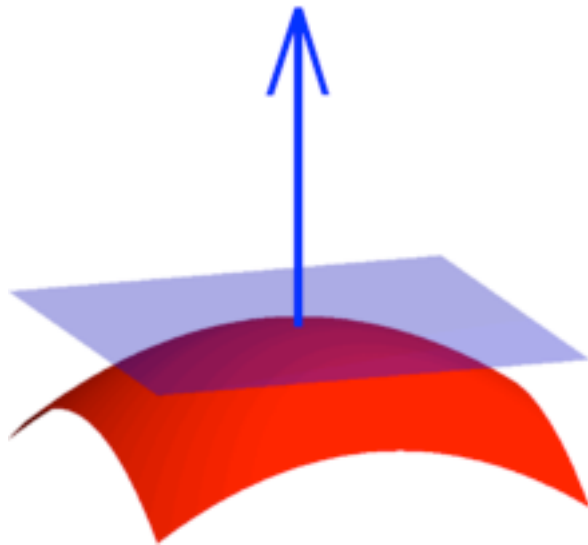


mit Tris und Quads lässt sich gut arbeiten.

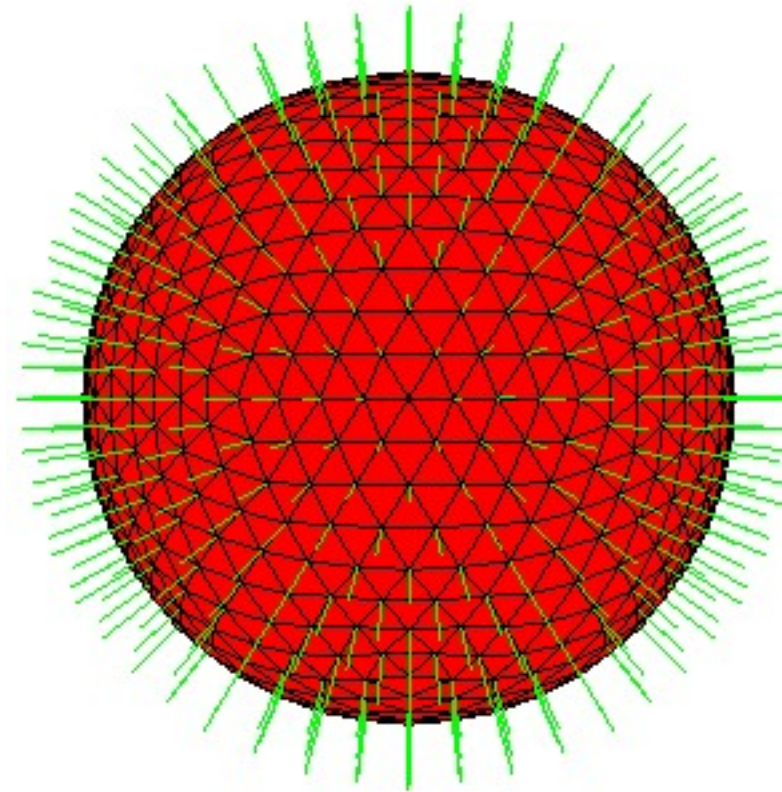


n-gons werden meist ziemlich unsauber trianguliert.

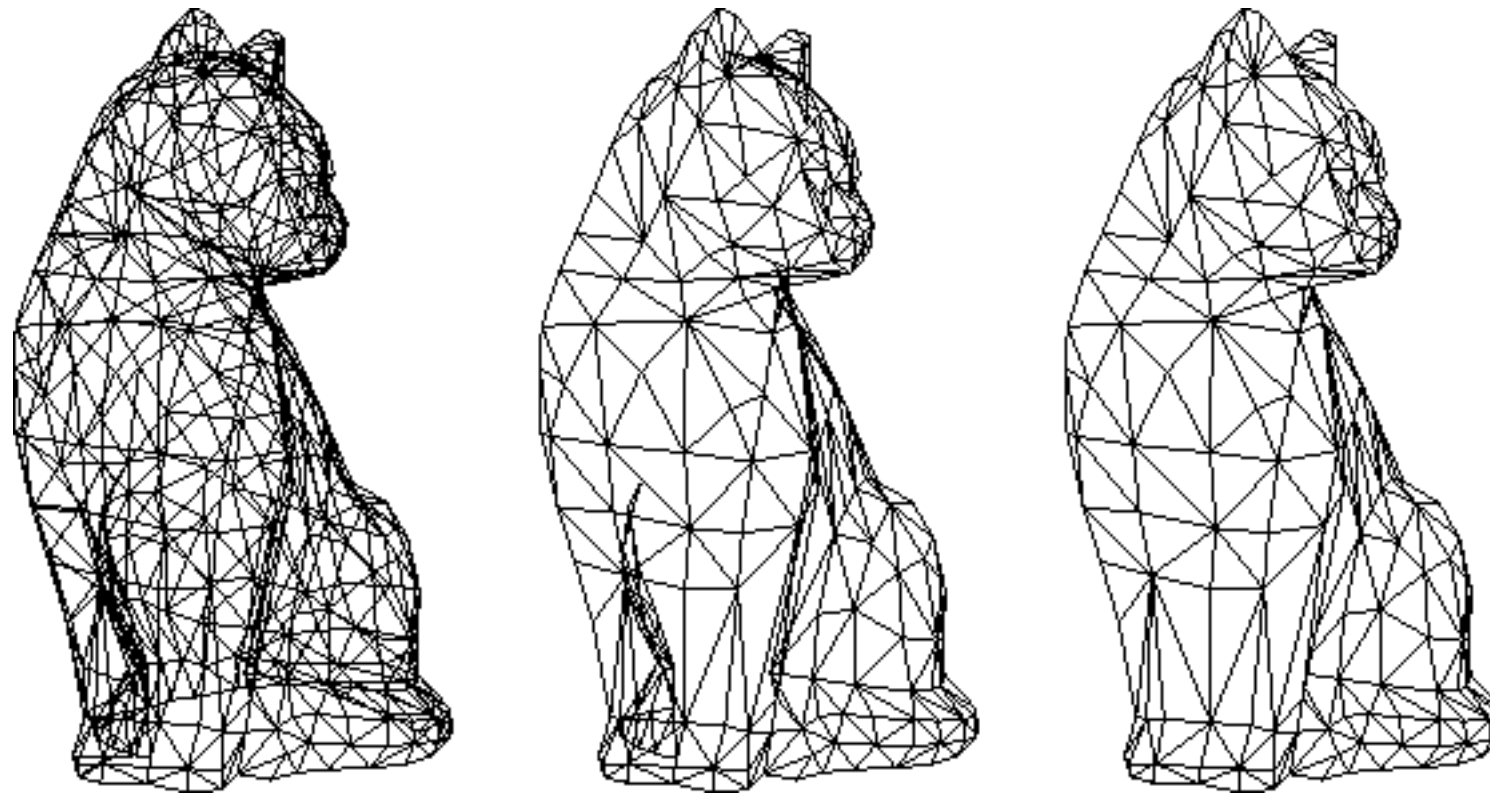
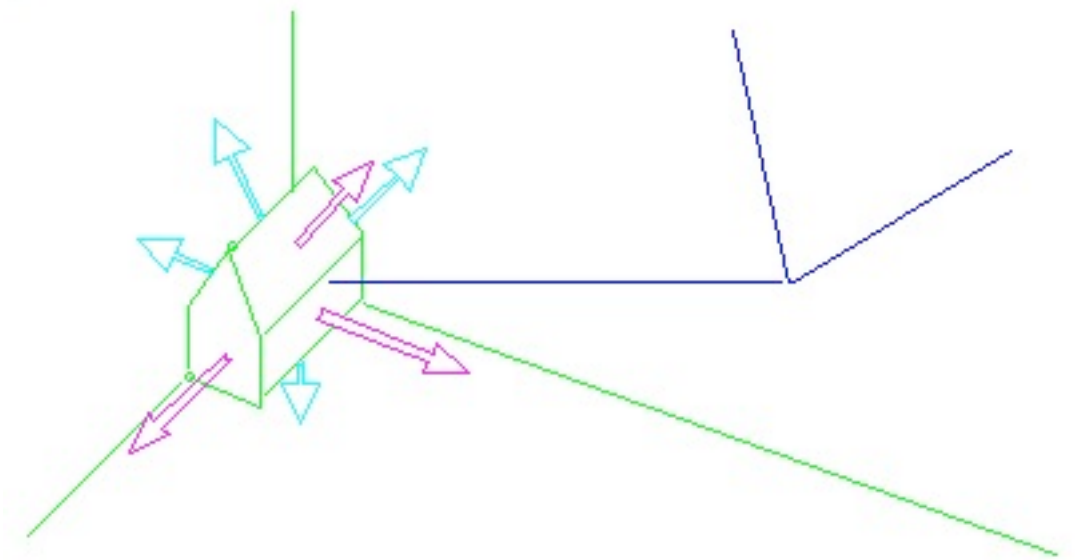
Normalenvektor



Der Normalenvektor steht senkrecht auf seinem Polygon.



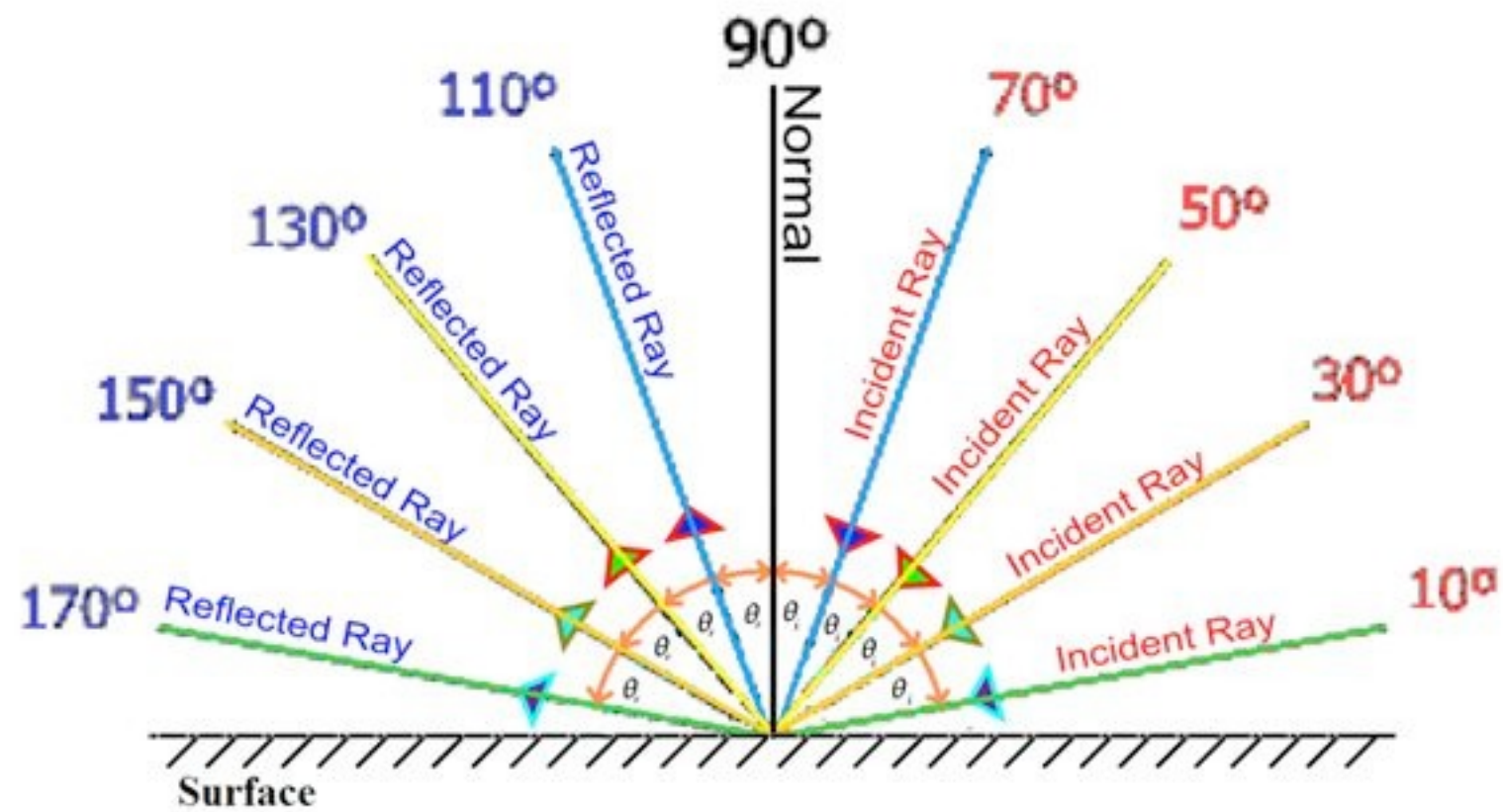
Hidden Surface



Comparison of no hidden surface removal, backface culling, and hidden surface removal

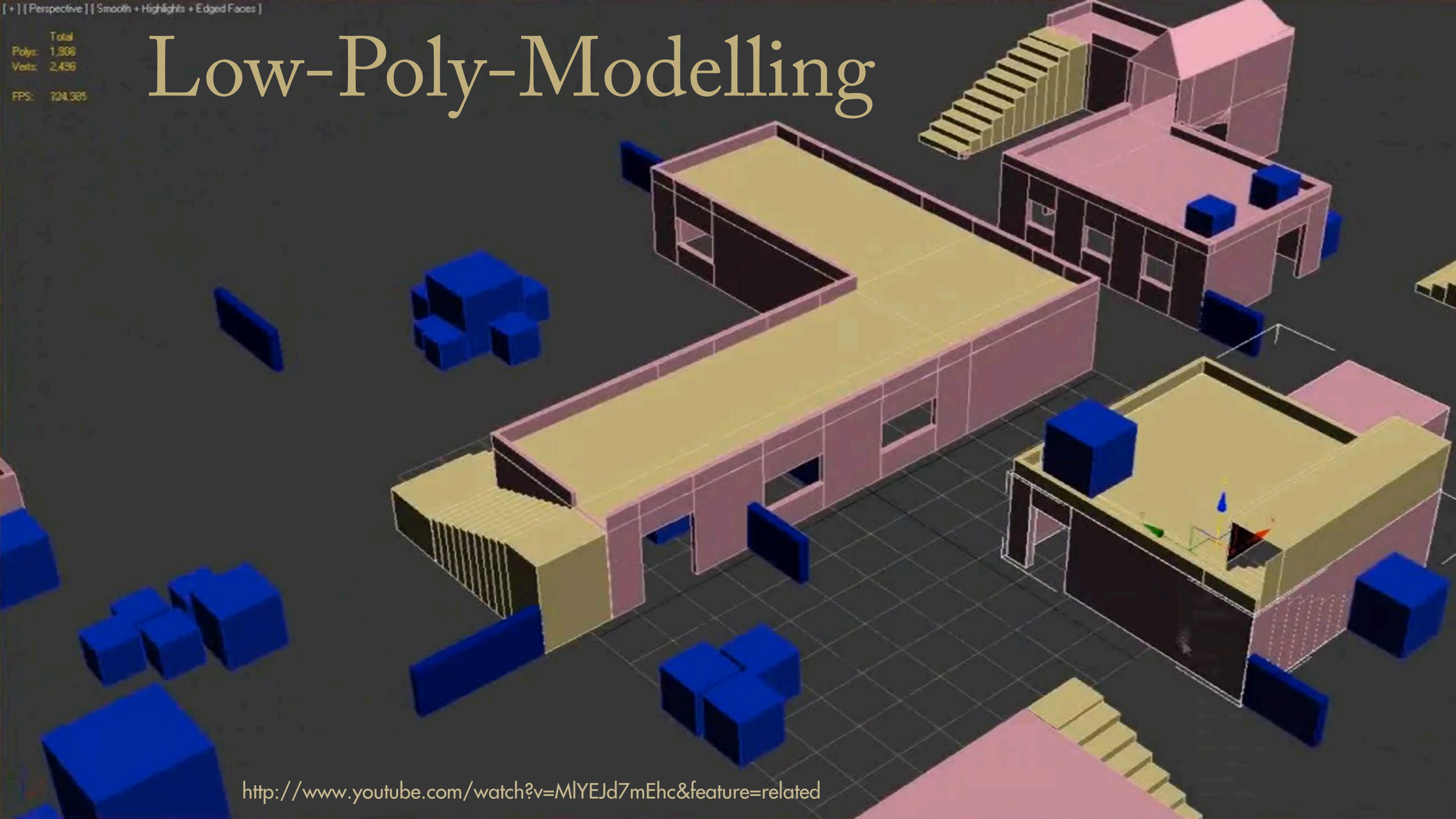
<http://medialab.di.unipi.it/web/IUM/Waterloo/node70.html>

Beleuchtung

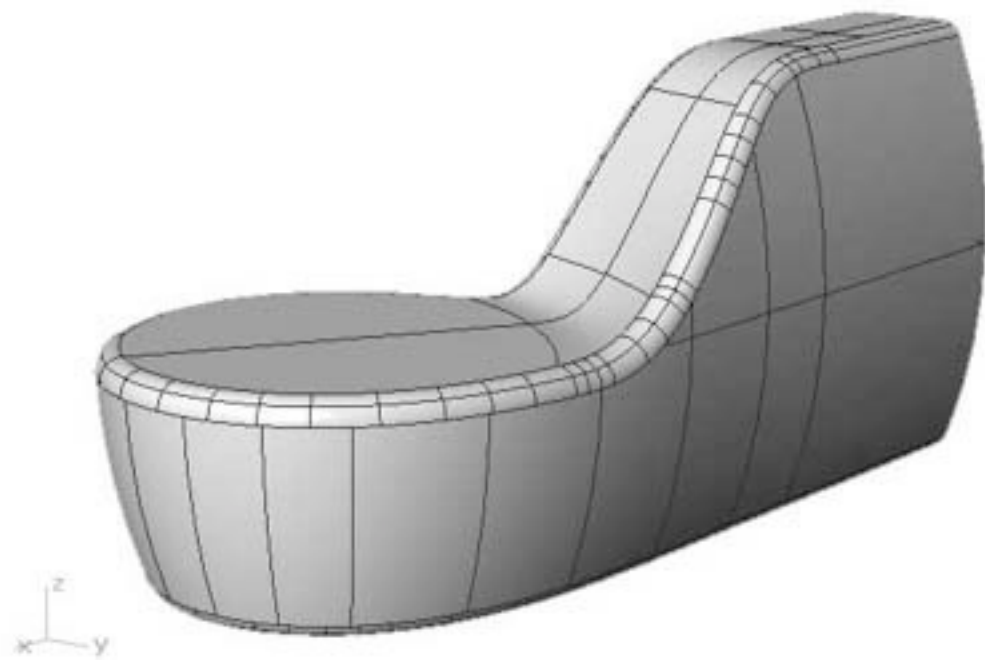


Total
Polys: 1,808
Verts: 2,436
FPS: 724.385

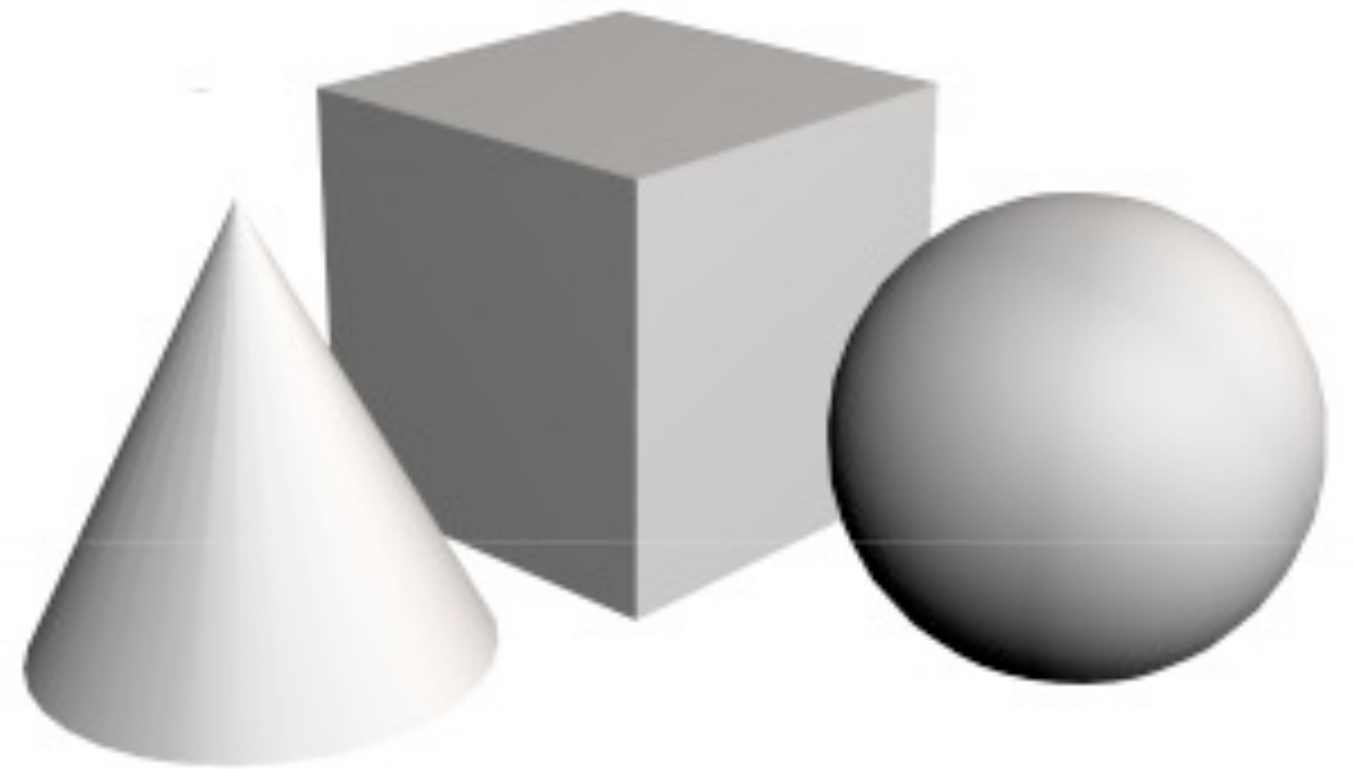
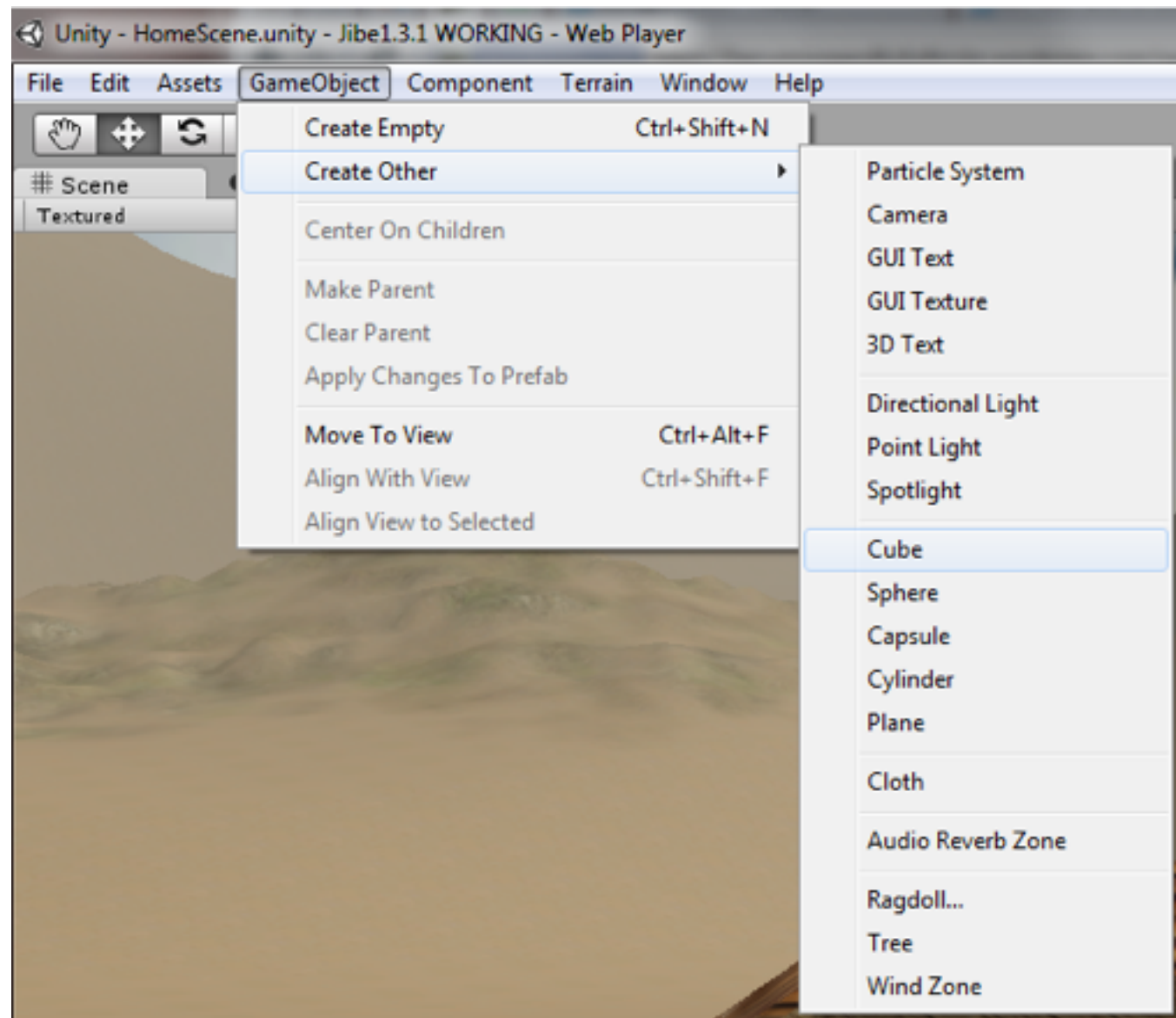
Low-Poly-Modelling



Curve Modelling

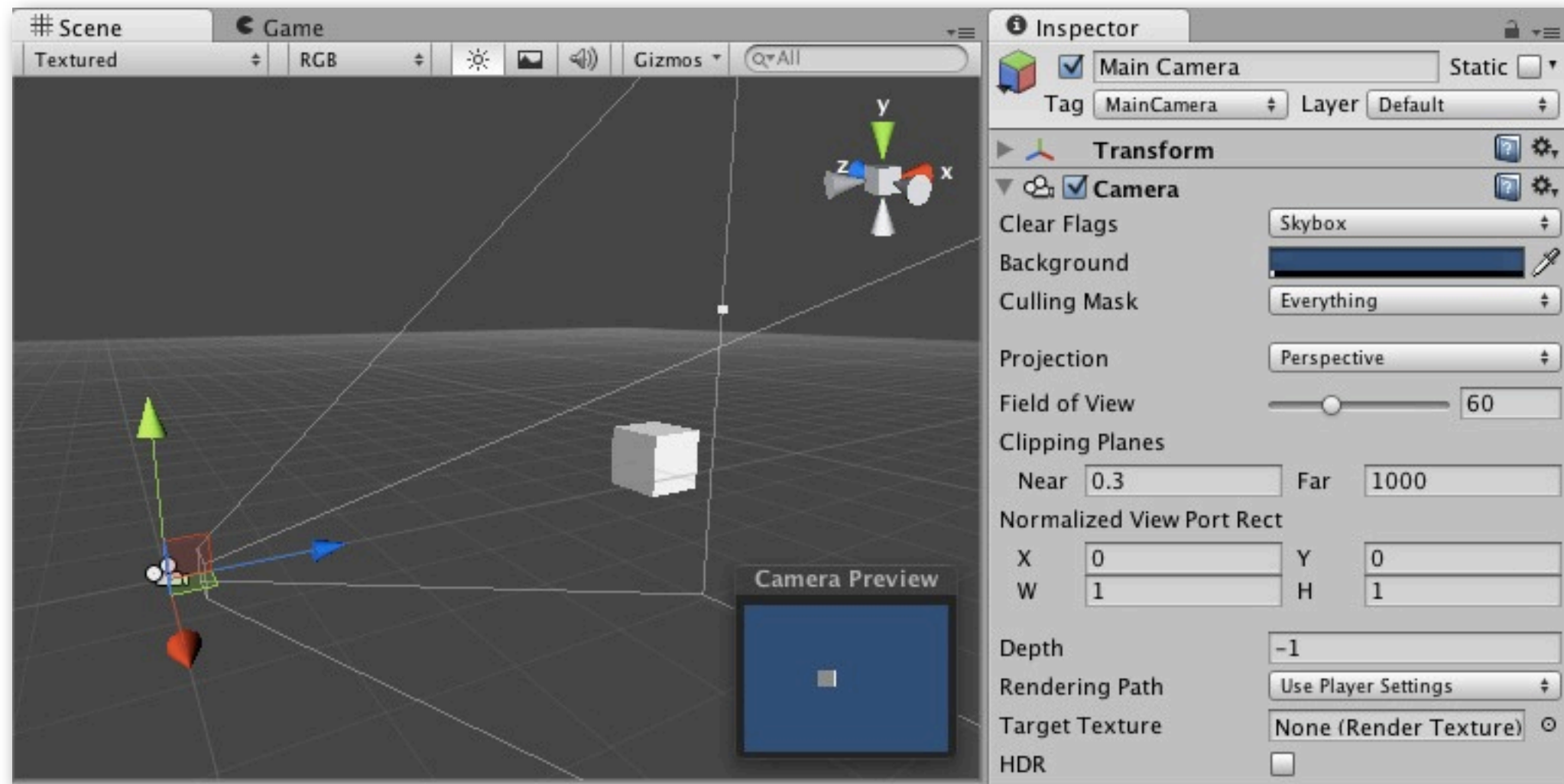


3D-Objekte in Unity



<http://becunningandfulloftricks.com/2011/06/13/building-things-in-jibe-if-youre-a-newbie-primitives-and-model-packages/>

Kamera



<http://unity3d.com/support/documentation/Manual/Cameras.html>

Unity

