

Rapid 3D Game Development in Blender 2.5

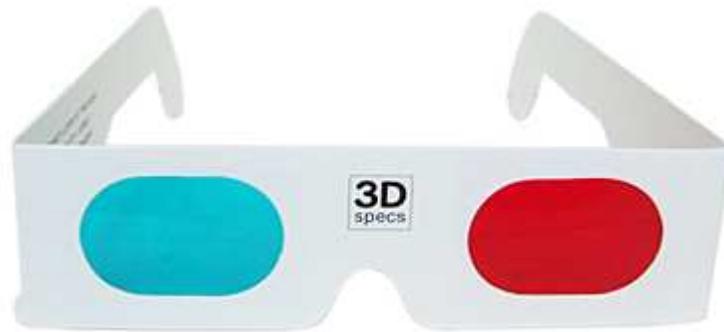
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- INTRODUCTION TO 3D GAME PROGRAMMING
 - COMPONENTS OF TYPICAL 3D GAMES
 - PYTHON 3D GAME DEVELOPMENT
 - BLENDER GAME ENGINE
 - BLENDER 2.5 BASICS
 - CASE STUDY: A SIMPLE 3D GAME
 - FURTHER READING

(Re)visiting 3D Games

Please wear your glasses now



Genres

Action – FPS

Adventure

RPG

Puzzle

Sims

Sports

Strategy

Game Engine

PHYSICS ENGINE

SOUND ENGINE

SCRIPTING ENGINE

ANIMATION ENGINE

Game Engine

AI ENGINE

NETWORKING

RESOURCE MGMT

...

INDUSTRY INSIDER TIP #87

Don't write your own!



Programming 3D Games in Python

Python 3D game engines

GAME ENGINES	REMARKS
PYOPENGL PYTHON-OGRE PYRR PYGLET	ONLY RENDERING, NOT FULL GAME ENGINE
PANDA3D	GAME ENGINE IN C++ WITH PYTHON INTEGRATION
SOYA 3D / PYSOY	HIGH LEVEL 3D ENGINE FOR PYTHON
BLENDER GAME ENGINE	GAME ENGINE, MODELER, ANIMATOR
SYLPHIS3D	COMMERCIAL GAME ENGINE WITH GPL VERSION

Blender Game engine (BGE)

PHYSICS ENGINE ✓

SOUND ENGINE ✓

SCRIPTING ENGINE ✓

ANIMATION ENGINE ✓

Blender Game Engine

AI ENGINE

NETWORKING

RESOURCE MGMT

...

PYTHON

Where has BGE been used?



ColorCube Puzzle game \$

SAAB-91 Virtual Race

BFight

"A Furry Vendetta", Yo Frankie! Project

Architectural Visualizations

Physics Simulations

**What kind of games can be made with
BGE?**



FPS?

Multiplayer?

Orthographic?

Platform?

All of them

Two ways of making games

1. Code a Game loop



```
do  
  get player input  
  do calculations  
  repaint screen  
loop while not game over
```

Yawn!

2. Click and drag game creation (the **Blender** way)

100% Code-free **

**** Conditions Apply***:**

. The conditions under which you do not need to write any code are as follows: 1. The game you are trying to build is completely free of any complex logic such as bot AI, path finding, complex simulations 2. There is no multiplayer requirement. 3. There are no complex collisions outside that can be handled by default bullet engine

*** All these conditions are fake

Understanding the way of Logic

Understanding the way of ~~Logic~~ Machines

What is a Machine?

Reacts to Stimulus
Evaluates some logic
Performs an action

Take any Machine

coffee machine | fire alarm | firecracker

Reacts to Stimulus
Evaluates some logic
Performs an action

Reacts

Evaluates

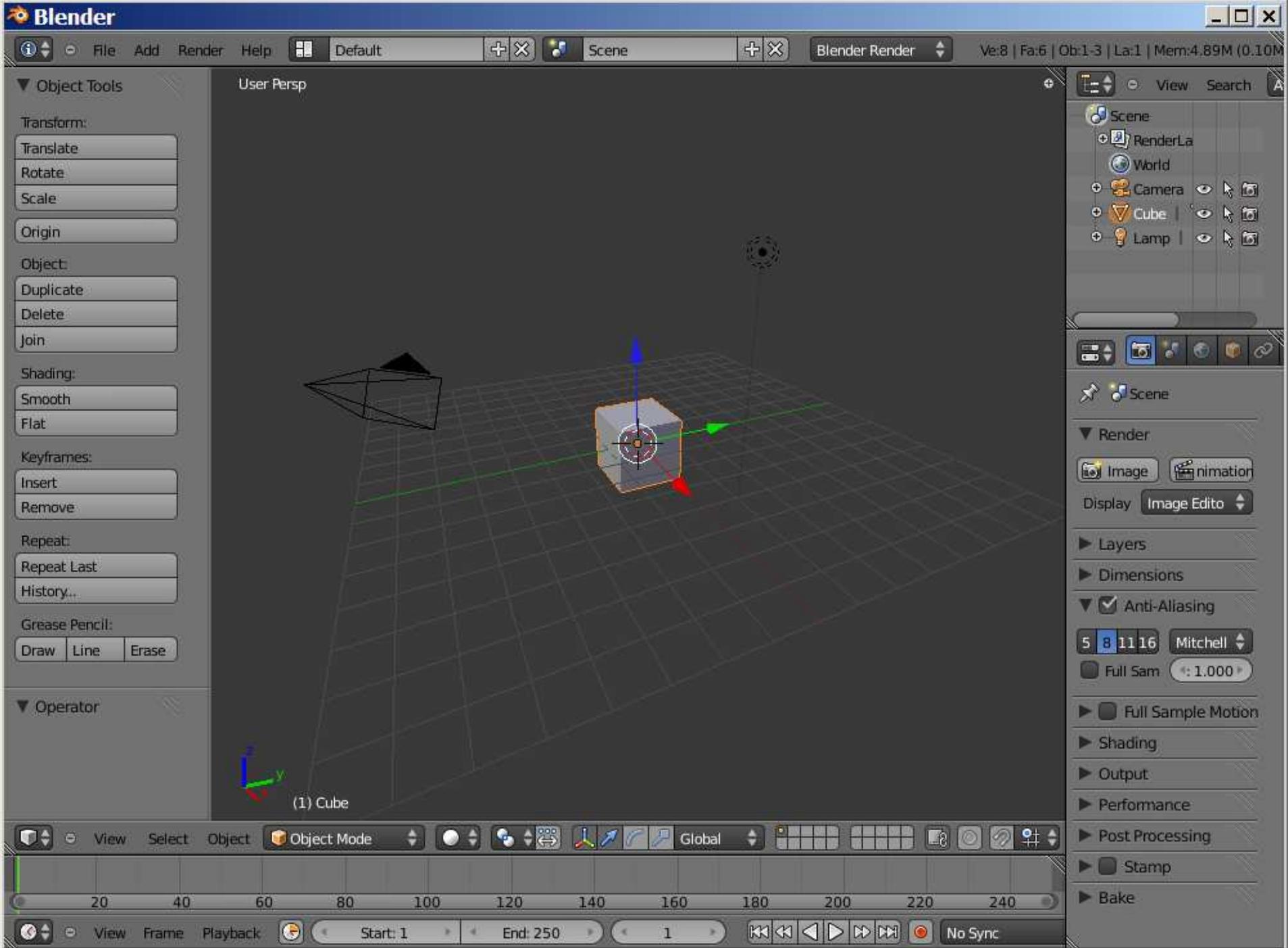
Performs



A Crash Course to Blender 2.5 (Beta)

A Crash Course to Blender 2.5 (Beta)

Yes, it may crash!



What's new in 2.5?

Major rewrite of Blender API
GUI finally works! (Discover)
New Smoke System
Python Based GUI

What's new in BGE 2.5?

*** Faster!**

*** New sound system (ogg, mp3, wav...)**

*** Real-time external IK targets**

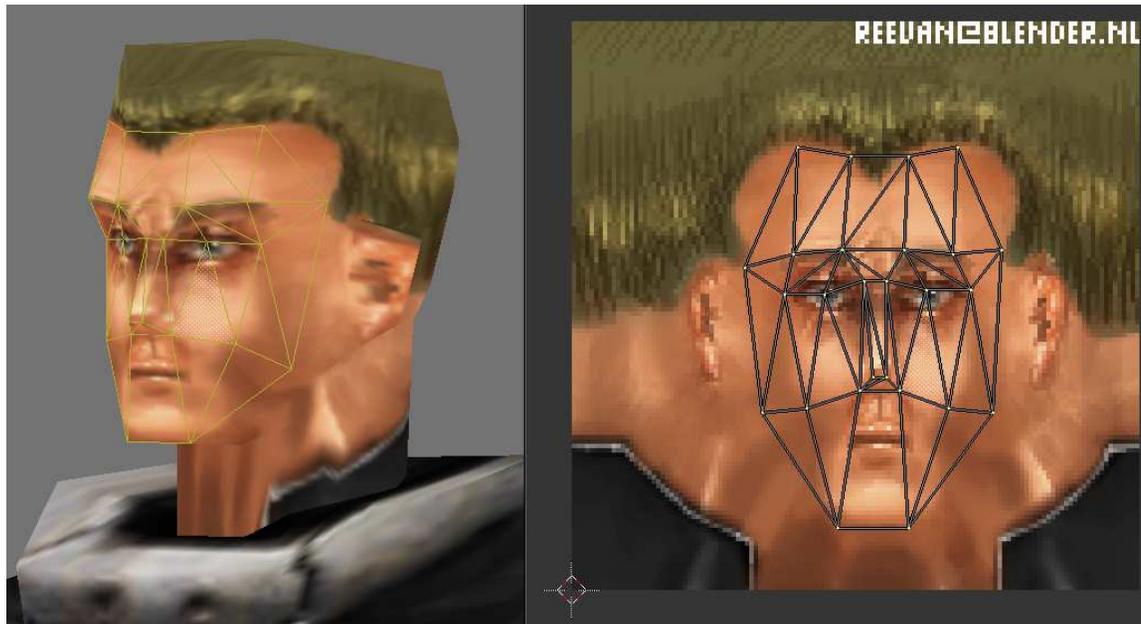
*** Ability to use raw OpenGL code (GUIs)**

*** Dynamic loading/freeing of assets**

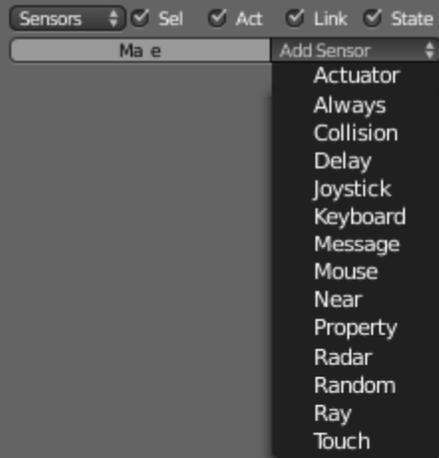
*** Python API improvements**

Some BGE concepts

Modeling & Texture mapping



Types of Sensors



Types of Controllers



Types of Actuators

Sensors Sel Act Link State
Ma e Add Sensor

Controllers Sel Act Link
Ma e Add Controller

Actuators Sel Act Link State
Ma e Add Actuator

- Camera
- Constraint
- Edit Object
- F-Curve
- Filter 2D
- Game
- Message
- Motion
- Parent
- Property
- Random
- Scene
- Shape Action
- Sound
- State
- Visibility

Packaging Your Blender Game

Blender Player
CrystalBlend
GameKit

Pros & Cons of BGE

- 😊 No code
- 😊 No Compilation
- 😊 Out-of-the-box Physics
- 😊 No Integration Issues
- 😊 Python 3.1! ^{1st}

- ☹ **Graphical Logic Complexity**
- ☹ **Sparse Documentation**
- ☹ **Unconventional Approach**
- ☹ **Optimisations?**

Case Study: Pacman 3D

Learn more

[HTTP://WWW.BLENDER.ORG/DOCUMENTATION/250PYTHONDOC/](http://www.blender.org/documentation/250PythonDoc/)

[HTTP://WIKI.BLENDER.ORG/INDEX.PHP/DEV:2.5/PY/API/INTRO](http://wiki.blender.org/index.php/Dev:2.5/Py/API/Intro)

Thank You

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