

Panda3D Features

General Features

Object-Oriented Design, Other:

- Support for ARtoolkit
- Development in C++ or Python
- Web plugin for deployment over the web
- "all-into-one" application packaging system
- Wide range of user-provided features and examples (PhysX integration, AI, GUI, particle system etc.)

Scripting

- Python scripting interface
- Programming on the fly using interactive scripting in the Python shell

Built-in Editors

- Direct tools for GUI-based scene editing
- Particle effects API and GUI-based particle panel
- Future plans: An easy to use but powerful and generic scene/level editing tool

Physics

Basic Physics, Collision Detection, Rigid Body, Vehicle Physics:

- Very basic physics engine that may apply forces to classes. The physics engine can handle angular or linear forces, as well as viscosity
- There are two ways to go about collision detection: Bounding volumes & allow collisions against all geometry
- support for ODE physics

Lighting

Per-vertex, Per-pixel, Volumetric:

- A variety of lights that work by vertex lighting

Texturing

Basic:

- Animated textures
- Support for video textures (AVI, MPG, MOV)
- Pointer textures (direct access to graphics card memory)
- 3D textures

Shaders

High Level:

- Support Cg
- GLSL support
- Shader generator for basic shaders and combinations (bump, parallax, specular etc.)

Animation

Skeletal Animation:

- Soft skin animation and a sophisticated actor interface for character animation

Meshes

Mesh Loading, Skinning:

- Supports 3D Studio Max, Maya, and blender models via plug-ins.
- Low-level mesh manipulation

Special Effects

Particle System, Motion Blur, Fog:

- Post-effects (bloom, blur, volumetric lighting, cartoon look etc.)

Terrain

Rendering:

- Generate terrain meshes from heighfields.
- GeoMipMapping

Networking System

Client-Server:

- a networking library and a mmo-grade patching system

Sound & Video

2D Sound, 3D Sound, Streaming Sound:

- Sound using the FMOD library
- Support for OpenAL

Artificial Intelligence

Finite State Machines:

- Built-in AI library with basic behaviours
- Two different finite state machine systems: FSM & ClassicFSM

Rendering

Fixed-function, Stereo Rendering, GUI:

- Rendering for red/cyan stereo glasses