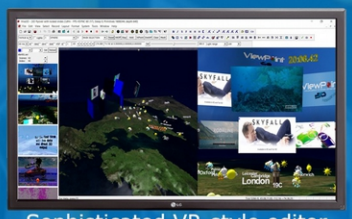
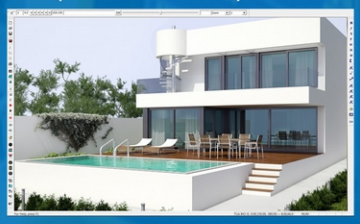
Datasheet

用于3D文字的28,762个中国字形
3D 텍스트 용 21,647 개의 한국어 글리프
3Dテキストのための日本語グリフ2290

Real-time data-driven 3D engine + VR editor + Player


Sophisticated VR-style editor


Fast modelling in Real-time

- Fast Real-time 3D engine
- Fully GPU-based rendering
- Platform independent core
- Desktop & 24x7 embedded
- Object-oriented 3D scenes
- External data driven scenes
- Resolution up to 32K²
- Complex lighting & shadows
- Extensive material types
- 3D TrueType Unicode fonts
- 4K video playback in-scene
- Autostereoscopic & 2D+Z O/P
- Instant movie conversion to autostereo

Dynamic data-driven screens

Full QHD 3840x2160 | Full HD 1920x1080

For more information:
info@ViewPoint-3D.com

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Viva3D® Pro release 1.06

Features overview

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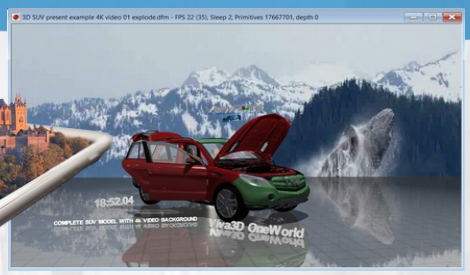
Android and iOS compatible


Virtual-reality style editing with in-scene 4K video streaming
*18M polygon scene rendered @ ~25 FPS on HP Envy Ryzen 2500u 2-in-1 laptop

Unique features

- Real-time GPU/GPGPU rendered 3D scene creation & presentation with in-scene dynamic data & streaming
- Virtual-reality style scene editing dramatically boosts productivity
- **GPU-based software provides enormous performance scalability across mobile, embedded and desktop platforms : Viva3D engine is fully platform independent**
- Renders complex scenes on low-cost devices, including sub $70- UHD set-top boxes
- Fully interactive 3D environment with live-data updating of in-scene objects
- AI driven gesture & speech controlled content creation & presentation
- Supports all standard displays and projectors, both 2D and 3D holographic
- **Direct 2D+Z and Autostereoscopic multi-view output for all sub-pixel formats**
- 3D scenes support live data input, i.e. 3D content can show live data feeds, text, live video, time and date, transport schedules, prices, etc.
- Comprehensive easy-to-use automated scene creation facilities
  Extensive range of materials with extendable vertex, pixel, and geometry shaders
- **Real-time conversion of SBS-LR (glasses) 3D movies to autostereoscopic multiview**
- 2D & 3D TrueType™ Unicode fonts with texturing, bump-mapping & live-data linking with Arabic (right-left+ligands), Chinese, Hebrew, Japanese and Korean scripts
  Comprehensive object-oriented scene management and archiving
- **Fastest available GPU-driven animation using mesh skinning and morphing**
- Programmable particle effects, billboards, spot and unidirectional lighting, environment mapping, fast depth buffer PCF shadows, and other special effects
- Rendering of 2K-8K video directly to textures for 3D scene video playback
- **Mesh formats supported:** FBX (.fbx), 3D Studio (.3ds), Bliz Basic B3D (.b3d), Cartography Shop 4 (.csm), COLLADA (.dae, .xml), Delgine (.dmf), DirectX (.x), Wavefront (.obj), Milkshape (.ms3d), My3D (.my3d), OCT (.oct), OGRE Meshes (.mesh), Pulsar LMTools (.lmts), Quake 3 levels (.bsp), Quake models (.md2/.md3)
- Image formats: Portable Network Graphics (.png), JPEG File Interchange Format Windows Bitmap (.bmp), Adobe Photoshop (.psd), Truevision Targa (.tga), ZSoft Painbrush (.pcx)
- Flexible 2D and 3D GUI with animated buttons, list and edit boxes
- Physics engine support, with efficient collision detection, gravity & response system
- **External sensor & device I/O, including real-time stereo camera input, IR & LIDAR**
- Voice & gesture recognition for content creation and presentation control, animated human models can interact using voice recognition supported by AI
- **Extensive features for 3D digital signage** content management, scheduling, playback & reporting with 24x7 channel presentation on an unlimited number of independent channels with regional groups and content. High fault tolerance.
- ODBC database connection and filtering to support data I/O and language or code translation. Maxum™ Network server software available to rebroadcast datagrams.
- Datagram reception, transmission and filtering to support data I/O and translation across local or global networks using standard socket protocols at low bandwidth.
- Audience Metrics support providing viewer driven actions and data reporting
- Detailed status and error reporting via FTP, email and SMS messaging
- Designed for 24x7 operation with kernel-level operating system management
- Drivers for OpenGL/ES 2-4, DX9-11 and Vulkan

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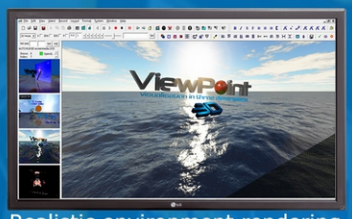
Viva3D dynamic data

28,762 Chinese glyphs for 3D text
21,647 Korean glyphs for 3D text
22,290 Japanese glyphs for 3D text

Easy-to-use yet sophisticated, with Image processing and A.I.



Realistic environment rendering

Complex models in real-time
with easy-to-use advanced features

Per-pixel lighting : 32 lights
PCF shadow smoothing
Reflective environment map
Fastest radiosity method
Fog with V&H attenuation
Volume lighting
Sky boxes & domes
Flexible particle system
Realistic sky & ocean sims
Dynamic terrains
Model sectioning
Glass & bump renderer
Complex texture animation

Complex scenes easily set-up

Full QHD
3840x2160

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Drag-n-drop sub-meshes with exploded views

Scene rendering facilities

- Dynamic lighting with shininess, specular, diffuse, and ambient settings
- Dynamic shadows using scene depth rendering and PCF smoothing
- Reflective surfaces using environment map or simulation textures
- Flexible particle systems to produce rain, snow, smoke, fire and logo confetti effects
- SkyBoxes and SkyDomes with rotation; 32K pixel panoramic image support
- Fog with distance controlled attenuation and tinting
- Volume light to create spatial glow effects
- Video rendering to any surface, including SkyDomes, at up to 4K resolution
- Real world data-driven ocean and atmospheric simulations
- MIP-mapped detail-level terrains with up to 2M x 2M pixels per tile resolution
- Bump, Parallax and Sphere mapping
- Transparent surfaces with mix-controlled reflection
- Manual or automatically controlled model sectioning & sub-mesh transformation

Scene management

- 3D scene's are created by manually placing objects into a Virtual Reality style world space. Once placed, objects are modified by selecting the required materials and attributes. In this manner, complex scenes and animations can be created and modified very rapidly.
- For interactive content, users have a wide range of controls, from a standard user-interface, to gesture control and speed. This includes in-scene touch-activated information display, 3D buttons, and exploded views controlled using a slider or hand gesture.
- 3D scene objects can be spatially linked so that they track a parent object's movements. In this manner they can be easily linked to form more complex objects. Animations applied to the parent object act on all linked objects, simplifying animation control.
- A wide range of stock animations can be applied to objects, including rotation, step-rotation, fly straight, fly circle, ellipse, path, fly waypoints, face camera, proximity activation, etc. An unlimited number of cameras can be set-up, which can be activated at set times or events, and animated to fly paths, with programmable look-at targets, and tracking modes.

Scene and model editing

- Users can paint models very easily just by dragging texture files onto the part of the model required, or clicking that part and selecting a color, texture file, and shader type. Multiple selections of sub-meshs can be made, and then a color or texture file assigned. The whole process if entirely visual, we could say it was 3D WYSIWYG!
- Once painted, models can be positioned with the mouse and spun into position in seconds. Models can also be instantly duplicated and animated with custom or standardized animiations.
- Environmental reflections, glass effect, transparency and shaders can be simply selected for each model or each individual material and its associated sub-mesh. There are no limits to the number of materials per model, that is apart from available memory!
- Each sub-mesh or a model can be dragged and rotated as required by the user using the mouse or touch gestures. Multiple sub-meshs can be selected for rotation to facilitate animation of any part of the model as required, and a single slider control allows models to be expanded (or exploded) as required. Models can also be set to automatically expand as the camera approaches.

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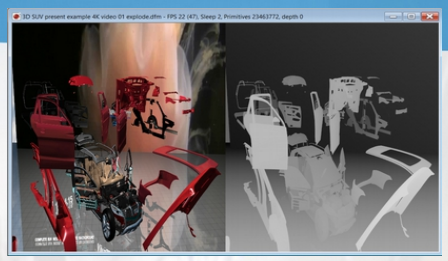
Viva3D dynamic data

Instant output to 3D displays : Autostereo & 2D+Z



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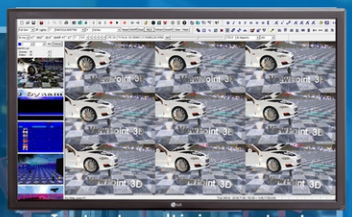
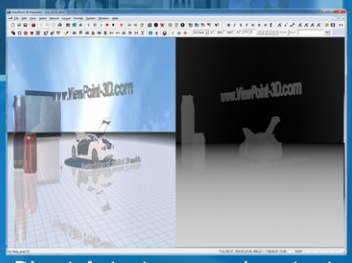
Vertex height compute of large terrains in real-time on GPU from data feed

2D+Z and autostereoscopic output and stereo camera input in real-time



Instant multiview output



Direct Autostereoscopic output
3D+Depth & Direct sub-pixel formats

REMOTE DATA-DRIVEN:-

** 3D model selection*

** Image selection*

** 3D & 2D text input*

** Animated model control*

** Animation control*

** Camera control*

RT Stereo camera I/P

RT Stereo camera to 3D

RT L/R video conversion

RT Object & face detection

Dimenco/WowVX/RealCel...

RT Speech I/O

- **Support for an unlimited number of materials/sub-meshes per model**, each with it's own settings. Each material can use any of the available renderers, including Phong and Gouraud, with transparency, bump mapping, environmental reflection and live video to texture, plus database data, text and image rendering to texture.
- Advanced per-pixel lighting supports a mix of up to 32 lights and radiosity channels, with PCR shadows.
- Models and their sub-meshes can be translated and rotated as required, and animated to support events such as door fly-throughs.
- 3D models can be linked to local data tables that are populated from incoming data. Data can control object mesh selection, position, 3D TrueType text content, and many other attributes.
- Database text can also be translated internally to select 3D models and textures, allowing simplified remote control of 3D in-scene elements, useful for creating auto-updating content.
- 3D text linked to external data is fully supported.
- A library of 3D models allows scenes to be created rapidly. Additional models can be imported into scenes as required up to 1GB each. Models can be rendered in real-time fully shaded, or in wireframe mode. Textures can be dropped directly onto model surfaces or browsed.

Rendering features

- Per-pixel lighting with depth-map PCF shadowing, radiosity & bump maps
- Up to 32 lights and radiosity sources supported, with light colour and effects
- Per material anti-aliasing with 5 levels
- Per material filtering (bilinear, trilinear, anisotropic) for improved quality
- MIP maps for improved image quality at all scales, including on real-time video streams
- Fog enabling per material with height and distance attenuation
- Alpha blending and multi-texture mixing to effect & environmental reflection textures
  Gouraud, phong and depth map rendering
- Fast ray traced environment reflection simulation, with soft shadows from multiple lights
- Reflective surface (floor)(environment or simulated) with parallax maps for water surface
  Sphere map, simulated and true environment reflection.
- Glass environmental reflection and refraction with optional bump map
- Transparency via texture color key: supports video keying
  Transparency via texture alpha
- Material lighting controls : specular, diffuse, emissive, ambient, shininess
  Volumetric lighting with efficient vertex based shader, and color start and end selection
- Wireframe rendering per sub-mesh or entire model
  Backface/Frontface culling
  Texture matrices for 2D rotations
- Vertex geometry shader for fast mesh animation of large numbers of models
- Vertex heightmap shader supporting massive terrain models stored on the GPU. This avoids the need to regenerate large mesh models on the CPU, increasing load speed, and in addition allows real-time terrain height variation, useful in a number of modelling scenarios.
- Video rendering, either live stream or recorded, direct to texture at up to 4K resolution. Advanced coding techniques allow the efficient processing of massive video frames to texture in real-time, allowing 4K content to be streamed to textures at up to 120 FPS on mobile.
- Stereo camera live feed or video rendering to depth-extruded mesh in 3D scene, enabling external world to be captured in 3D environment and realistically represented.

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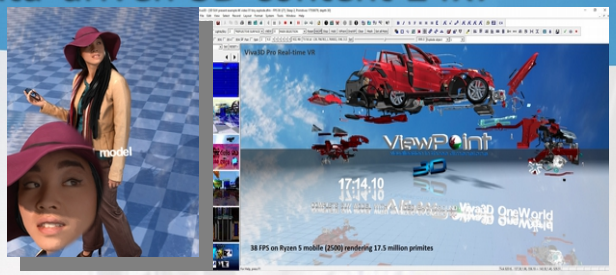
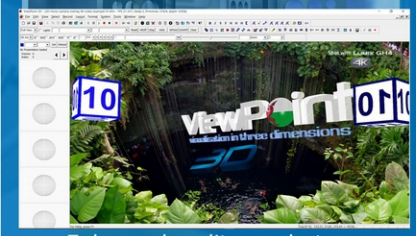
Viva3D dynamic data

Powerful & flexible data-driven 3D content 24x7



80% faster than other tools



Enhanced reality ready-to-go

Designed for GPU-based 3D

Parallel processing boosted

Standards-based coding

Modular & object-oriented

High efficiency coding

Coded by hardware experts

Integrated for advanced A.I.

Image recognition

Speech controlled interface

Stereo camera processing

Real-world scene mapping

Real-world depth mapping

Highly expandable structure

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Fast, flexible & powerful compatible with low-power computing for low-cost and mobile platforms

Model/Character animation

- Anatomically correct human characters animated in the GPU allow real-time animation through standardized key frames, text scripts, or direct voice control, allowing director-to-actor control. Real-time rendering of realistic human models is now possible even on mobile devices.
- Skeletal animation: Limb meshes are manipulated via animated joints, skinned and morphed in real-time in the GPU. Animated objects may also be linked to clothing or other objects. Models can be imported in following formats:- FBX, DirectX, My3D and Blitz.
- Flexible animation: Meshes can be linearly interpolated from one frame to the next. 98% of animation is directly managed by the GPU, allowing realistic animations on low-cost devices. Facial animation is managed via standardised rigging that can be synchronised to text files or live data streams supporting lip-syncing. Models can also directly follow voice commands.
- **Simulation and 3D mimic data displays**
  As a data-driven real-time 3D system that is 24x7 reliable, Viva Pro makes possible advanced 3D mimic displays for industry and science, maritime and aerospace applications. We would be pleased to collaborate with any enquiries in these fields.
- **Advanced Digital Signage for large global networks**
  Viva3D Pro offers a complete solution for global 3D-empowered TV, from server software to ensure each channel is always running, to automated reporting and content updating. Please contact us for details.
- **3D Visualization without glasses** - Viva3D Pro instantly outputs to VR googles, autostereoscopic multiview, 2D+Z and LightField monitors, and even the latest holographics displays. It supports most known autostereoscopic monitors and all of the WowVX and Dimenco formats.
- **Infinite expandability** - Viva3D Pro has been carefully designed with a modular structure allowing the most efficient processing using not only the latest 3D rendering processors of today, but future innovations yet to come. We are confident that we are ready to rapidly expand the capability of the program to support advanced A.I., image and speech recognition to make creating content and interacting within 3D worlds a real pleasure.

Summary

Viva3D® Pro provides a fast, flexible and efficient solution for rapidly creating realistic & complex data-driven 3D content for a wide range of applications from education, to advertising, industry and science. It is available for desktop, mobile & embedded 24x7 applications.

Content can be created as much as 80% faster compared to existing tools, and with a much reduced learning curve; for more details visit our ViewPoint3D channel on YouTube.

Viva3D offers many novel features, including zero render time, remote-data control of in-scene models making, for example, automated weather maps a possibility, auto-updating 3D text & models, stereo camera/video input with automatic depth map creation, automatic conversion of LR stereo movies (SBS glasses formats) to 3D scene, object & face recognition, and direct output to autostereoscopic and holographic displays.

Its unique VR-style scene editor makes creating content fast and enjoyable, allowing users to create exciting 3D content dramatically faster than any other application. With VR googles users can enter the 3D scene to create content using data-gloves to modify objects, and speech for object control and confirmation.

Viva3D Pro has been developed entirely within the company using standards-based C++ coding, enabling easy expansion of features to meet future needs. Please contact us for further details.

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