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Hello,

Below you will find the recent interview we have conducted with the core developer of GizmoSDK, Anders Modén.

GizmoSDK Interview with Anders Modén

modsim.org:

Hello all, This is Devrim Erdem, the editor. We were having an email conversation about GizmoSDK with Anders Modén from SAAB Training and we thought it is a better idea to run the discussion here. Anders, GizmoSDK seems to be an almost complete simulation system framework. Where does it come from ? How mature is the GizmoSDK ?

Anders Modén:

Hi !

The GizmoSDK is a project driven by STS (Saab Training Systems AB) and it originates from a 3D engine named Gizmo3D that originally was written by me and developed in a company named ToolTech Software.

Nowadays it is a pretty mature API and STS is using it in all their Simulation applications. I have tried to make it a very modern API with a C++ interface. I love to program 3D apps so all "nifty" ideas that I can think of is tested in the API.

modsim.org:

The modern C++ term has become somewhat frustrating for some of us (extensionless headers etc :)) Can you tell us what do you mean by the modern C++ interface of GizmoSDK ?

Anders Modén:

I have been working with Performer, Vega etc. for many years and a couple of years ago (6) I started to design a Scene Graph that would allow me to work with techniques that I thought was missing in other APIs.

First of all I wanted a good platform independant API that could handle multithreading and high performance 3D and a object oriented API that would support that. This gave me the abstraction between gzBase and the 3D libs. it also gave me APIs that supports design patterns like RT observer/notify patterns, factory , decorator, abstractions between data/format and model.

Second I wanted an API that really integrates with windows systems like Win32, ActiveX, X11, Qt, wxWindows etc.

Third I wanted an API that could be extended and easy configured to use the latest features in DirectX and OpenGL.

The result was Gizmo3D. We have a couple of external customers, but the main usage has (yet) been in STS simulators. Not so many people know of Gizmo3D yet and as I needed to have some kind of funding to live on the development of Gizmo3D we had to make it commercial. Not easy these days when APIs like OpenSG and OpenSceneGraph are free. Gizmo3D need to be at least 3 times better than other free APIs to be able to sell it and that is not always easy ;-)

But in general I do make a decent living on it and it is really a great way to explore new techniques in Scene Graphs...

modsim.org:

The OpenFlight has been dominating the industry since decades now. Getting models out of Maya and Max has been always difficult if one wants the complete capability set (like DOFs, switches, multitexturing etc)

Which file formats does Gizmo3D support and does Gizmo3D bring any improvements on the file loader front (like supporting modern modeling tools like Maya and Max) ?

Anders Modén:

We support OpenFlight with multitexture, shaders, DOFs etc (PIXXIM e.g. uses real time shadows defined in OpenFlight). We also support pfb, 3ds.

The architecture that I talked above about, supports a user to add new readers/writers with versioning. Another thing that I find important is to separate data and format so e.g. you are allowed to read data from a serialized stream from a e.g. a http server and stream the data into a format reader of e.g. a openflight file.

I have recently found out that user needs good modelling tools, so right now I am working with an architecture for Gizmo3D that will allow editing in 3D studio and Maya as well as in other editors using a plugin data exchange interface.

modsim.org:

What kind of shadow technique is used in GizmoSDK, shall the user expect a serious overhead ?

Anders Modén:

Gizmo3D can use both stencil shadows (preferred) as well as shadow maps. Most modern HW have good acceleration on stencil buffers so it is quite ok to use shadows on most HW.

The Scene Graph uses optimis to ensure that the shadows get updated and with minimal overhead. The graph detects if shadows are static and then compiles them into fast VBO draws.

modsim.org:

How about clustering ? Does GizmoSDK provide out of the box PC IG Cluster support ?

Anders Modén:

Gizmo3D supports sync between multiple gzWindow's using UDP on ethernet. No other HW sync is implemented yet.

modsim.org:

GizmoDistribution looks like a reliable piece of networking library built on the classic publish-subscribe concept. ([Documentation](#)) Is GizmoDistribution also available as a standalone product ?

In this context, I will , of course , also ask about the HLA connectivity in GizmoSDK.

Anders Modén:

GizmoDistribution is a stand alone API. Mostly it is used with Gizmo3D to provide distributed graphics. It is the back bone system of all our simulations and it is used as a software architecture in all STS products, for observer/notify distributed designs.

It is similar to HLA but it is capable of distributing completely hierarchical object oriented objects between simulation clients both between processes but also within a process.

It is also used as a backbone to integrate HLA from Pitch, NG, etc. between incompatible FOMs to "transfer" and "filter" data and events between our customers HLA interfaces. We also got a DIS bridge and a RPR fom to translate events.

GizmoDiswtribution can be downloaded and tested just as Gizmo3D and GizmoTest. the other APIs is not yet public available for download...

Anders Modén:

Hi !

I have added a demo that shows some moving map objects using the GizmoDistribution and Gizmo3D in our demo framework. You can find ot on our web page...

/Anders

Anders Modén:

If you want to test any of our libraries you can download them at our web site. I can also help you through the examples.

Any feedback is great. I would be happy to discuss distributed computing, graphics and simulation tips and trix with you...

modsim.org:

Back after the easter break.

Just one more question and then we are ready to close the talks I guess, till the next release of GizmoSDK :)

What's next on your roadmap ? Which new features are being implemented or planned for the next releases ?

Anders Modén:

Hi again !

I am working on the contents editing features. We have seen that the APIs sometimes are too complex for visual modellers and artists to use. Therefor we are adding features to visualise and model data used in the Scene graph and in the other APIs as well.

We are developing a framework to let Gizmo objects be modelled in Maya, 3D Studio as well as in your own software so you e.g. use a viewer to debug the scene graph within your own application.

We are alos working on the other APIs that not yet are public like the GizmoGUI framework, GizmoSimulation etc..

Ok. Thanxs for having this conversation. I hope I can help people that are interested in some of our technology using our support email.

Bye for this time ;-)

/Anders

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