



OpenGL-ctypes



A modest project to rewrite PyOpenGL



What Came Before

- PyOpenGL is SWIG based
- Macro-expansion upon macro expansion
 - PITA to try to understand
 - No-one is excited about working on the code
- It's dying from lack of love
- But still gets 70 downloads/day
- Serious problems with building/compiling
- Togl keeps failing



Why ctypes?

- Easier compilation and end-user setup
- Lower barrier to entry for hacking the system
- Make coding up new extensions easy
- More flexibility in data-types and libraries
- Clean up and document the design
- Make the project fun again



Compilation and Setup



- SWIG and Togl problems cost the majority of development and support time with PyOpenGL
- SWIG seems to change APIs on every minor release, breaking our code as it does so
- Togl is built by a custom mechanism, rather than the Togl makefile... it doesn't work any more
- The build system is a hideously complex beast



Lower Barrier to Entry

- Make code explicitly say what it is doing
 - Instead of implicitly matching rules
- Make the test-run-debug cycle seconds again
 - Instead of long minutes of compiling
- Let every user of the system be a potential developer of the system
 - No need to know C
 - Let users step through wrapping process in the Python debugger



Make New Extensions Easy



- There are some 262 registered extensions
- Coding/customising each one is straightforward
 - But doing all of them is a huge job
- Users should be able to modify/write any extension they want to use (from the base auto-generated wrapper)
 - And then contribute their enhancements back

Flexibility in Data-Types and Libraries



- Allow for using all of these (and more) as primitive data-types in OpenGL:
 - Numarray
 - PyGame surfaces
 - PyMedia buffers
- Adapt to and support the new features of:
 - Different OpenGL versions
 - Different GLUT implementations



Clean Up and Document



- PyOpenGL probably wouldn't be as mystifying if its design was fully documented...
 - but it isn't, and its author isn't available any more to explain it
- I want something that is easier to read
 - Even if it means more work writing it
- I want something that other people can develop
 - So I'm not a choke-point for the project



Make the Project Fun Again

- This is, after all, 3D computer graphics
 - (The coolest form of programming in the universe)
- It must be fun to work on
 - It must be something into which people can stop and play for a few months
- Come on over and play!