CIS 4930/6930-902: Scientific Visualization (Fall 2015)

Project 4 (prerequisite): Installing VTK

adapted from an assignment created by Xavier Tricoche

To complete the main project, you must install VTK on your local machine and ensure that it works properly. VTK is an open source library written in C++ that has been successfully tested on all sorts of platforms and most operating systems. A fair amount of documentation designed to help users and potential developers is available in the VTK Wiki. The instructions below can mostly be found in the Building VTK rubric.

Prerequisites

To install VTK according to the instructions below you must first ensure that you have a C++ compiler installed on your machine.

- If you are using a Windows computer—You will need Visual Studio.
- If you are using a Linux machine—You should not have to do anything since compilers are usually part of the standard installation.
- If you are using a Mac—You must first install XCode from the App Store. You will then need to download the XCode Command Line Tools (instructions at http://osxdaily.com/2014/02/12/install-command-line-tools-mac-os-x/).

On all systems, you'll need to download and install CMake (http://cmake.org).

Getting VTK

There are two ways to acquire the source code of VTK. Either is fine for this class.

- Download the latest stable source release—By far the simplest option to obtain the source code of VTK consists in downloading the most recent stable release.
- Obtain VTK using Git—Git is a distributed version control system that the developers of VTK use to collaboratively extend the software. Using Git you can access the latest version of VTK and keep your local copy up to date as modifications are being made over time. In particular, you should first install Git and then download VTK using it. Note: that will provide you with a pre-release version of VTK.

Getting VTKData

The examples that come with VTK make use of a number of interesting datasets that you should download as well. This will help you familiarize yourself with the syntax of typical VTK programs by running the examples and see what they do. The latest version of the data is available here. Download it and unpack it to a convenient location.

Compiling and Testing

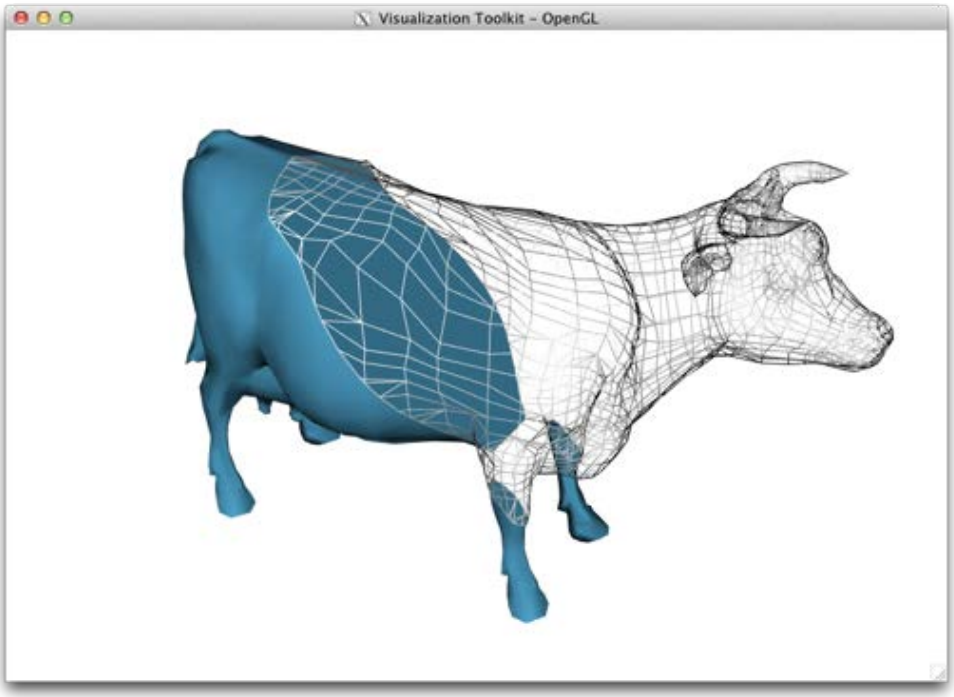
Since you downloaded the C++ source code of VTK, the next step is now to compile the software using CMake.

If the build completed successfully, you should now have produced two executables named `vtk` (if you selected the Tcl wrapper) and `vtkpython` (if you selected the Python wrapper). If you compiled VTK under Windows, the executables are located under `<DIR>\build\bin\release`. Under OSX or Linux the executables will be under `<DIR>/build/bin`.

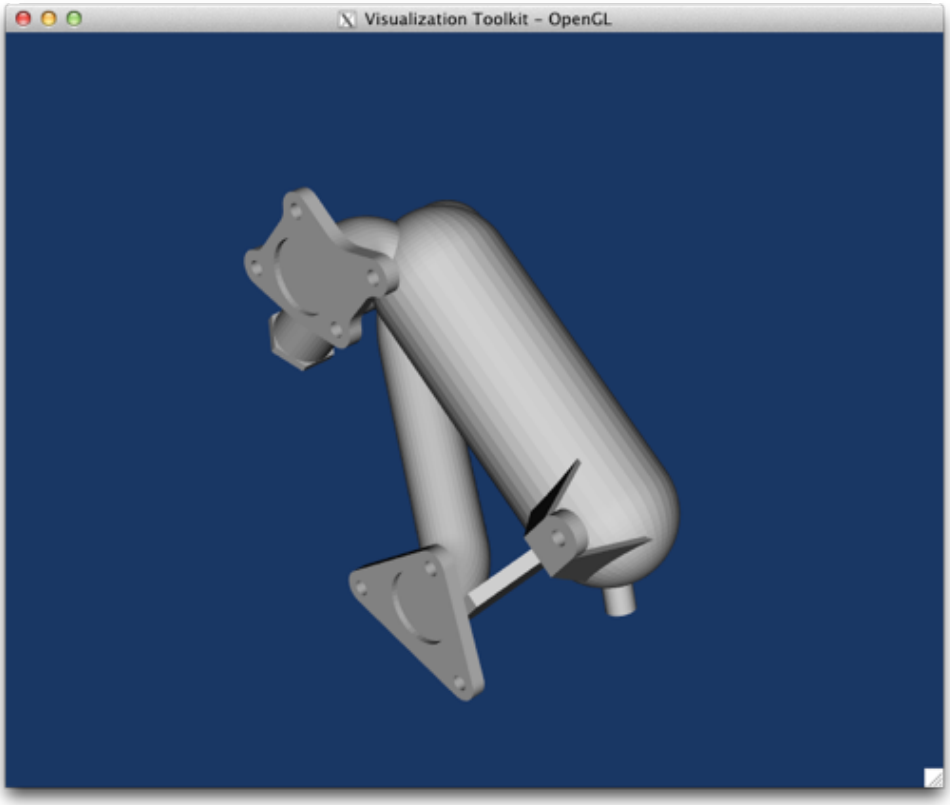
The easiest way to verify that things work is to try running some of the VTK examples. These examples are located under `<DIR>/Examples`. A few examples of what you should be getting follow. If you can't find those files, try the Git repository.

If your installation runs these examples correctly, congratulations, you are set! If you encountered any problem along the way, please consult Internet-based help, as I am not a heavy user of VTK.

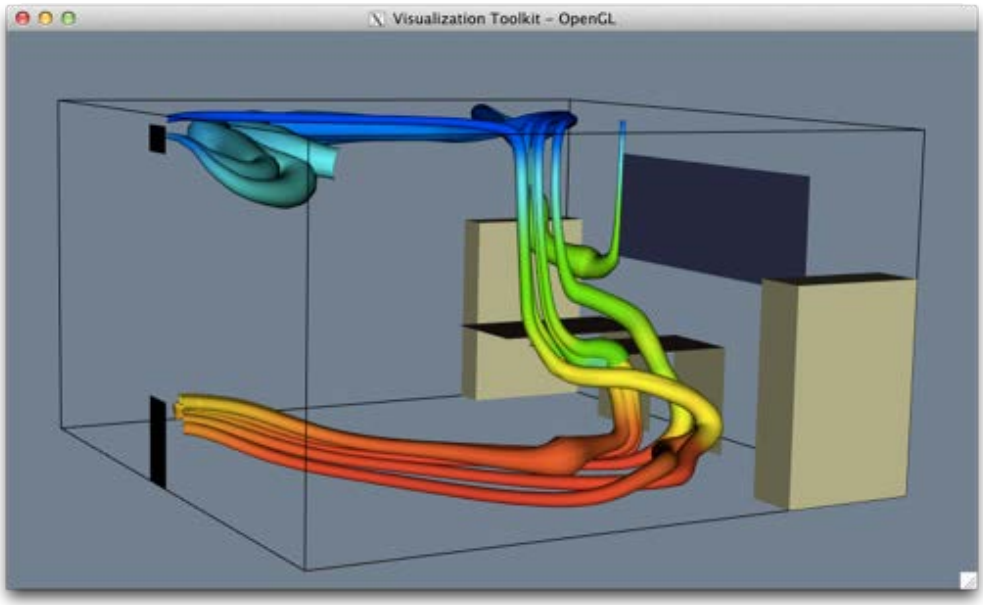
```
<EXECDIR>/vtkpython <DIR>/Examples/VisualizationAlgorithms/Python/ClipCow.py
```




```
<EXECDIR>/vtkpython <DIR>/Examples/Rendering/Python/CADPart.py
```



```
<EXECDIR>/vtkpython <DIR>/Examples/VisualizationAlgorithms/Python/officeTubes.py
```




```
<EXECDIR>/vtkpython <DIR>/Examples/VolumeRendering/Python/VolumePicker.py
```