

SAPAC Work Report
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My main involvement at SAPAC was the integration of Macintosh systems into stereo visualisation environments. The principal interest was OsiriX [1], an open-source medical imaging application. I created a plug-in that added several stereo modes to OsiriX, including "quad-buffered" rendering, the stereo method used in the SAPAC Visualisation Lab and SAVRC. Due to current hardware issues the Mac has not yet been integrated into the projection system used in the Visualisation Lab. It was, however, successfully trialled at SAVRC and also operates as a personal workstation using shutter glasses. The plug-in has since been sent back to the OsiriX developers, and has been made publicly available as open-source [2].

OsiriX and stereo visualisation was of interest to many in the medical community. Craig Hill, my supervisor, arranged ten sessions where I demonstrated the capabilities added to OsiriX. Participants came from the three partner universities as well as from industry.

I investigated other visualisation applications on the Mac, such as:

- PyMol (molecular modelling)
- Chimera (molecular modelling)
- HyperCube (spectral research)
- Madena (medical imaging)
- Volocity (medical imaging)

Working with Nathan Simmonds, a fellow student scholarship recipient, I explored the integration of multiple software and hardware packages. This involved taking 3D models generated by OsiriX into the SolidWorks engineering design program and also into a haptic environment using ClayTools. Rendered movies were also exported from OsiriX and viewed in Stereoscopic Player.

After incorporating stereo support in OsiriX, I looked into other applications where stereo could be of benefit. I subsequently added stereo rendering to Celestia, a cross-platform astronomy application. This program runs both on the Macintosh and on the existing Windows-based PC in the VisLab.

Along with Macintosh applications, I assessed multiple Windows visualisation programs including CTAn (CT scan analyser), SolidWorks, Bitmanagement Contact Stereo, and Blender.

Finally, I developed my own stereo photo and movie viewer application for the Mac (tentatively called "Emergence"). This was in response to the shortcomings of the existing viewer applications. Through this program, I experimented with possibilities for displaying user interfaces in stereo. I will continue to develop this application on my own time, and it will be released to the community as open-source.

[1] <http://homepage.mac.com/rossetantoine/osirix/>

[2] <http://homepage.mac.com/rossetantoine/osirix/Plugins.html>