

Position Paper: X3D-Earth in the Software Visualization Pipeline

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1. Interests

The information visualization research challenge is how to invent new visual metaphors for presenting information and developing ways to manipulate these metaphors to make sense of the information [1]. Using X3D-Earth in the XML visualization pipeline will enable developers to use a powerful 3D engine to create 3D web visualizations of software in a much easier manner. This kind of approach has been successfully used for source code comprehension within virtual reality environments [2] and 3D game engines [3].

We currently have a web based visualization architecture [4] which requires tools for creating visualizations of software from XML execution traces. I am interested in attending the X3D-Earth workshop as I would like to be able to use and contribute to a standards based X3D-Earth model as an engine for a software visualization [5] system.

2. Expertise

Craig Anslow has a BSc and BSc (First Class Honours) degrees in computer science from Victoria University of Wellington, New Zealand. The honours project involved building a reliable XML database that could store large XML execution traces up to 100MB. The application allowed a user to store and query the traces over the web. Currently I am doing a MSc thesis degree in computer science in the area of software visualization. My thesis is to investigate how appropriate X3D is for the use in the software visualization pipeline. Preliminary results have showed that X3D is a medium which can produce relatively straight forward visualizations of software by transforming XML execution traces using XSLT.

I have extensive experience using XML, XSLT, XQuery, native XML databases, and Java. I also have four years industry experience working as a web developer for Victoria University of Wellington, self employed web developer, and a software developer for a large US organisation in New Zealand working on telecommunications software.

3. Strategic Partnerships

In Wellington, New Zealand there are number of companies working on 3D mapping technologies that the Web3D consortium could have potential strategic partnerships with. Some of these companies are now listed.

Terralink International ¹ provides Geographic Information Systems (GIS) and mapping solutions. Terralink was once owned by the New Zealand government but has since been privatised in 2001. Animation Research Holdings Ltd, a New Zealand company recognised globally for its innovative 3D animation achievements is an 80% shareholder. Terralink provides all the information for map publications in New Zealand and have various web applications to view this data. Terralink recently provided a tertiary education grant to a masters student in the School of Architecture and Design at Victoria University for a 3D, interactive, web enabled, multilayered model of Wellington City. The scholarship is valued at (\$15000 NZD). The recipient is currently using Google Earth as an engine to display urban environments.

MetService ² provides weather and information presentation services to customers around the world. It has produced Weatherscape XT, which is the world's premier weather graphics system used by leading broadcasters such as BBC News, BBC World, Nine Network Australia, TG4 Ireland and international CNBC stations. Weatherscape XT uses 3D rendering technology, 3D graphics animation, computer technology and meteorological science to provide an automated weather presentation and production system.

ProjectX Technology ³ is an international online map services company. They are a startup company and have existed since July 2005. They have developed two very useful tools to make online mapping easy. The first is ZoomIn Mapping System which is a toolkit that uses Ruby On Rails and can visualise your location based data. The second uses this system and is called ZoomIn. ZoomIn is a local search website for Australia and New Zealand. ZoomIn allows you to locate addresses, find businesses or services and interesting places you have never heard about or seen.

References

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- [2] Knight, C., and Munro, M. In Proceedings of the IEEE 7th International Workshop on Program Comprehension. *Comprehension with[in] Virtual Environment Visualisations*. 1999
- [3] Kot, B., Wuensche, B., Grundy, J., and Hosking, J. In Proceedings of 6th SIGCHI New Zealand Chapter. *Information Visualisation Utilising 3D Computer Game Engines Case Study: A Source Code Comprehension Tool*. 2005.
- [4] Marshall, S., Jackson, K., McGavin, M., Duignan, M., Biddle, R., and Tempero, E. In Proceedings of Australian Symposium on Information Visualisation. *Visualising Reusable Software Over The Web*. 2001.
- [5] Stasko, J., Brown, M., and Price, B. *Software Visualization*. MIT Press, 1998.

¹<http://www.terralink.co.nz>

²<http://www.metSERVICE.co.nz>

³<http://www.projectx.co.nz>