Abstract for "Switchboard: A Real-time Art Toolkit"

by Jeffrey Crouse

Emerging technologies have made it possible for artist to use a wide range of external, live data sources to give their work relevance and impact. Web services like Amazon and Flickr, open APIs like Google and Jabber, and the first trappings of the Semantic Web are new tools in the artists bag, and whereas the Web has a long history of serving as the canvas for digital art, only recently has it become the brush as well. Alex Galloway's Carnivore[1] uses network traffic to populate 3D worlds, drive space-shooters, and create beautiful abstract visualizations. Brian Whitman's EigenRadio[2] mathematically calculates the "optimal" internet radio station in real-time using other live internet radio stations. It would be misleading to say that these two works are merely referencing or influenced by these data sources. In fact, the works are fundamentally intertwined with the data sources, blurring the line between artwork and inspiration. The first part of this document explores the values and strategies of artworks that are driven by live data sources, or "real-time art", in attempt to bring some coherence to the genre.

Digital art demands a new kind of artist – one who engages the technical as well as the aesthetic. This can be a daunting task for traditional artists who want to create procedural art, but who lack the technical skills. Processing is an open source programming environment for artists and designers that has been successful at giving artists an entry point to procedural image and sound manipulation. However, Processing lacks web and network support that would make it a suitable platform for real-time art. To fill this need, I have created Switchboard: a conceptual-level interface to a library of web and network services. By designing Switchboard for the Processing environment, I am leveraging the proven Processing approach and the environment itself to encourage the growth of real-time art, just as Processing has encouraged the growth of procedural graphic art. Switchboard brings together a carefully-chosen set of tools and services, using paradigms already familiar to Processing users, and hides the complex implementation details to ensure that even beginners will be able to use data sources easily in their work. Underneath the easy-to-use interface is a fully-extensible infrastructure that will ensure that Switchboard remains relevant.

By combining multiple data sources to highlight connections and accomplish tasks that would be otherwise impossible, real-time art uses the web in a very powerful way. But this is not a new idea. In his book, "Weaving the Web", Tim Berners-Lee lays out his plan for the future of the World Wide Web – an idea that he calls "The Semantic Web." The goal of the Semantic Web is to allow machines to make these same kind of connections using resources from all over the web. In the years since work began on the Semantic Web, the old Web continued to evolve in other directions. In the second part of this document, I will look at how new developments on the Web are a departure from Berners-Lee's plan, why the Semantic Web hasn't yet achieved mainstream success, and propose Switchboard as one step towards reconciling the current web and the Semantic Web.

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1 Alex Galloway. Carnivore. <http://itserve.cc.ed.nyu.edu/RSG/carnivore/> (March 20, 2006)

2 Brian Whitman. EigenRadio. <http://eigenradio.media.mit.edu/> (March 22, 2006)