

SHOWCASE ARTICLE

# The Networked\_Performance Blog

Helen Thorington

*This article introduces the networked\_performance blog (<http://turbulence.org/blog>) and the musical explorations chronicled there since July 2004. It separates these explorations into three arbitrary and permeable categories—new sounds, new instruments and new musical experiences—to demonstrate the shifting relationship between composer, artwork and audience observable on the site.*

*Keywords: Networked Performance; Musical Explorations; Sonification; New Instruments; New Musical Experiences; Musical Horizons*

In July 2004, Michelle Riel, Assistant Professor of New Media at California State University Monterey Bay (CSUMB), Jo-Anne Green, my colleague at turbulence.org, and I launched the networked\_performance blog. It was our intention to chronicle current network-enabled practice, obtain a wide range of perspectives on issues and interests and uncover common threads in the work. For our purpose, we defined networked\_performance loosely, as any live event that is network-enabled. We include in this any form of networking in which computational devices speak to each other and create a feedback loop. We also qualify networked performance as being live, or experienced at the moment of creation or reception: a phenomenological experience resulting from connectivity as well as real-time computation (Figure 1).

What the blog revealed and continues to reveal in its over 1,550 entries is an ongoing explosion of creative experimental pursuits<sup>1</sup> made possible by the migration of computation out of the desktop PC and into the physical world, and by the continuing advances in Internet technologies, wireless telecommunications, sensor technologies and Geographic Information Systems (GIS). In these explorations, artists are utilizing pervasive, ubiquitous computing technologies<sup>2</sup> that are inexpensive, readily available and, most importantly, mobile and wirelessly



## **New Instruments**

Composers and musicians have always been active in the exploitation of new technologies. A quick review of the wide range of interactive instruments and musical works created for the World Wide Web confirms this.<sup>8</sup> The *networked\_performance* blog is a record of similar activities that combine technologies with artfully designed installations to create musical instruments. Among these are instruments that use laser technology, such as ‘The Cloud Harp’<sup>9</sup> by Nicolas Reeves, which creates an ongoing musical composition based on cloud information; and GPS technology such as ‘Ground Station’ (1999–2003)<sup>10</sup> by media artists Daniel Jolliffe and Jocelyn Roberts, which produces music in real time ‘by following the current azimuth, elevation and signal strength of the twenty-seven Global Positioning System (GPS) satellites’<sup>11</sup> developed in the United States as a military navigation system. ‘The Crossroad’ (2002)<sup>12</sup> by Tomas Dvorak makes use of custom software to create a quadraphonic installation, where the music is generated by the colors of cars that meet and pass at a crossroad. ‘Cloud Harp’, ‘Ground Station’ and ‘The Crossroad’ are generative instruments; the music they make is co-authored by their artist(s) and the data sources they call upon (i.e., clouds, GPS satellites, cars at the crossroad). The focus of these works is not on the creation of a fixed and repeatable composition, but on process. As instruments, however, their use by others is limited.

## **New Musical Experiences**

Not so installations like Amit Pitaru’s ‘Sonic Wire Sculpture’<sup>13</sup> and Golan Levin’s ‘Scrapple’.<sup>14</sup> These instruments have been developed so that others (the public) can make music. In the Pitaru work, one draws to make music; in Levin’s, one moves objects on the surface of a table. The *networked\_performance* blog also includes performance works like Jason Freeman’s ‘Glimmer’,<sup>15</sup> where a continuous feedback loop is created in which audience activities, software algorithms and orchestral performance create the music together, and software tools like Max Neuhaus’ ‘Auracle’,<sup>16</sup> a global tool for live sound interaction available 24 hours a day, where the interest lies entirely in involving the public at large in the creation of music. Like the recent work of Atau Tanaka, also to be found on the blog,<sup>17</sup> these works focus on the social dynamic of networks. They create structures that allow individuals and groups of people to participate in the musical creation process.

Wearables, which cuts across all three categories, include ‘Sonic Fabric’,<sup>18</sup> a textile woven from recycled audiocassette tape (the sound contained in the weave can be heard by drawing a tape head over its surface) and the ‘wearable piano’, a playable keyboard built into a woman’s dress.<sup>19</sup> As Masahiko Tsukamoto, who conceived the latter, says: ‘[You can] look forward to technologies that will make possible smaller wearable devices, giving rise to all sorts of wearable computers “built into” clothes, glasses and accessories’.<sup>20</sup> And you can be sure many of them will be musical. With an emphasis on the everyday (wearables and the

environment), on the composer as a programmer or designer of frameworks and the user as the shaper of music, these works call into question the familiar relationship of artist, artwork and audience. The *networked\_performance* blog is a chronicle of this shifting relationship; the sheer number of its entries, evidence of the transforming horizons of music.

## Notes

- [1] As of October 2005, the *networked\_performance* blog comprised over 1,550 entries. It has been visited by over 300,000 visitors; the rise from 100 visitors in July 2004 to 37,000 visitors in September 2005 demonstrates the keen and growing interest in these emergent practices.
- [2] In 1996, March Weiser identified three major periods in computing: the mainframe, where many people, mostly experts, shared the same computer; the era of the personal computer, where there is one person and one computer and the relationship is personal, intimate, something like the automobile; and the era of ubiquitous computing, where computers are imbedded in everything—in walls, chairs, clothing, light switches, cars and so on. He viewed the Internet as a massive phenomenon transitioning us through to the time of ubiquitous computing in which the relationship is everything to everything (see Mark Weiser and John Seely Brown, ‘The coming age of calm technology’, *Xerox PARC*, 5 October 1996. Available online at: [www.ubiq.com/hypertext/weiser/acmfuture2endnote.htm](http://www.ubiq.com/hypertext/weiser/acmfuture2endnote.htm)).
- [3] ‘The Cloud Harp’ by Nicolas Reeves. Available online at: [www.turbulence.org/blog/archives/001624.html](http://www.turbulence.org/blog/archives/001624.html).
- [4] ‘Heat and the Heartbeat of the City’ by Andrea Polli. Available online at: <http://turbulence.org/archives/04.html#polli>.
- [5] ‘Microwave Boom Box’ by Oren Horev and Myriel Milicevic. Available online at: [www.turbulence.org/blog/archives/001626.html](http://www.turbulence.org/blog/archives/001626.html).
- [6] Available online at: [www.turbulence.org/blog/archives/001617.html](http://www.turbulence.org/blog/archives/001617.html).
- [7] The potatoes are used as a power source for the performance by supplying conventional potato battery power. Using zinc (galvanized nails) and copper (thick wire), each potato generates 0.5 to 1 volt. The individual potatoes can be linked together in serial or parallel to increase voltage and/or amperage. According to their website (<http://onsight.id.gu.se/~sue/potato/index.php>): ‘Potato batteries power circuits that generate square waves with varying frequency and intensity depending on the voltage and amperage drawn from the potatoes, which is controlled by the performers by manipulating the battery configuration on the fly. Piezo contact mics are used to process physical interaction with potatoes (i.e., slicing potatoes, grinding potatoes, peeling potatoes, boiling and frying potatoes, etc.) No hint about the outcome of the experiment’.
- [8] For a brief introduction, see Jim Andrews’ 2003 article, ‘Interactive audio on the Web’ on the Trace website (<http://trace.ntu.ac.uk/Review/index.cfm?article=80>).
- [9] Available online at: [www.turbulence.org/blog/archives/001624.html](http://www.turbulence.org/blog/archives/001624.html) and [www.cloudharp.org](http://www.cloudharp.org). An infra-red laser beam and telescope that share the same optics to convert the height, density and structure of clouds into sounds and musical sequences in real-time. The Harp is polyphonic and can sing in many different voices simultaneously.
- [10] Available online at: [www.turbulence.org/blog/archives/000533.html](http://www.turbulence.org/blog/archives/000533.html) and <http://accad.osu.edu/~djolliff/sdn/sdn.htm>.
- [11] Each of these 3,000–4,000 pound solar-powered satellites circles the globe at about 12,000 miles (19,300 km), making two complete rotations every day. The orbits are arranged so that at any time, anywhere on Earth, there are at least four satellites ‘visible’ in the sky. A GPS receiver’s job is to locate four or more of these satellites, figure the distance to each, and use

this information to deduce its own location (see 'Introduction to how GPS receivers work'. Available online at: <http://electronics.howstuffworks.com/gps.htm>).

- [12] Available online at: [www.turbulence.org/blog/archives/000518.html](http://www.turbulence.org/blog/archives/000518.html) and [www.floex.cz/flopla/crossroad/description.htm](http://www.floex.cz/flopla/crossroad/description.htm).
- [13] Available online at: [www.turbulence.org/blog/archives/001404.html](http://www.turbulence.org/blog/archives/001404.html).
- [14] Available online at: [www.turbulence.org/blog/archives/001342.html](http://www.turbulence.org/blog/archives/001342.html).
- [15] Available online at: [www.turbulence.org/blog/archives/000286.html](http://www.turbulence.org/blog/archives/000286.html).
- [16] Available online at: [www.turbulence.org/blog/archives/000285.html](http://www.turbulence.org/blog/archives/000285.html).
- [17] Available online at: [www.turbulence.org/blog/archives/000471.html](http://www.turbulence.org/blog/archives/000471.html).
- [18] Available online at: [www.sonicfabric.com/fabric.html](http://www.sonicfabric.com/fabric.html).
- [19] Available online at: [www.eng.kagawa-u.ac.jp/AMT2005/Banquet.html](http://www.eng.kagawa-u.ac.jp/AMT2005/Banquet.html).
- [20] Available online at: [www.ceatec.com/en/2005/news/ne\\_web\\_detail.html?volume=%200005](http://www.ceatec.com/en/2005/news/ne_web_detail.html?volume=%200005).

