

Building Interactive Systems with WebSockets and Csound

Ashvala Vinay
Berklee College of Music
Boston, MA
avinay [at] berkeley [dot] edu

Dr. Richard Boulanger
Berklee College of Music
Boston, MA
rboulanger [at] berkeley [dot] edu

ABSTRACT

In this demo, we show interactive systems that use Csound's web-audio related builds – Csound for Portable Native Client (PNaCl), and Emscripten as their primary sound synthesis engine; and a server side build based on Node.js. We use WebSockets and modern implementations of Socket-based transports such as Socket.io to connect participants seamlessly to each other.

Our demos explore three use cases – a collaborative sound design tool; a networked music performance system over the internet; and a networked music performance system over a local area network. We will also demonstrate the differences between using Csound as the synthesis engine on the server side vs using Csound as the synthesis engine on the client side. The end result is a robust interactive networked music system that can be used from multiple platforms.

REFERENCES:

Lazzarini, Victor, Edward Costello, and Steven Yi. "Extending Csound to the Web."

Vinay, Ashvala and Richard Boulanger. "Building Web based interactive systems with Csound PNaCl and WebSockets". *Third International Csound Conference, 2015*.

Trueman, Daniel, et al. "PLOrk: the Princeton laptop orchestra, year 1." *Proceedings of the international computer music conference*. 2006.

Lazzarini, Victor, et al. "The mobile Csound platform." 2012.

ACKNOWLEDGMENTS

Thanks to the Csound developers especially Victor Lazzarini, Ed Costello, Steven Yi, Michael Goggins and John ffitich.

Thanks to all the members of the Csound community and specifically to the developers of Socket.io.

A special thanks to Nate Whetsell (<http://github.com/nwhetsell>), who made Csound for Node.js possible.