WAC

1st Web Audio Conference

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Web Harpsichord

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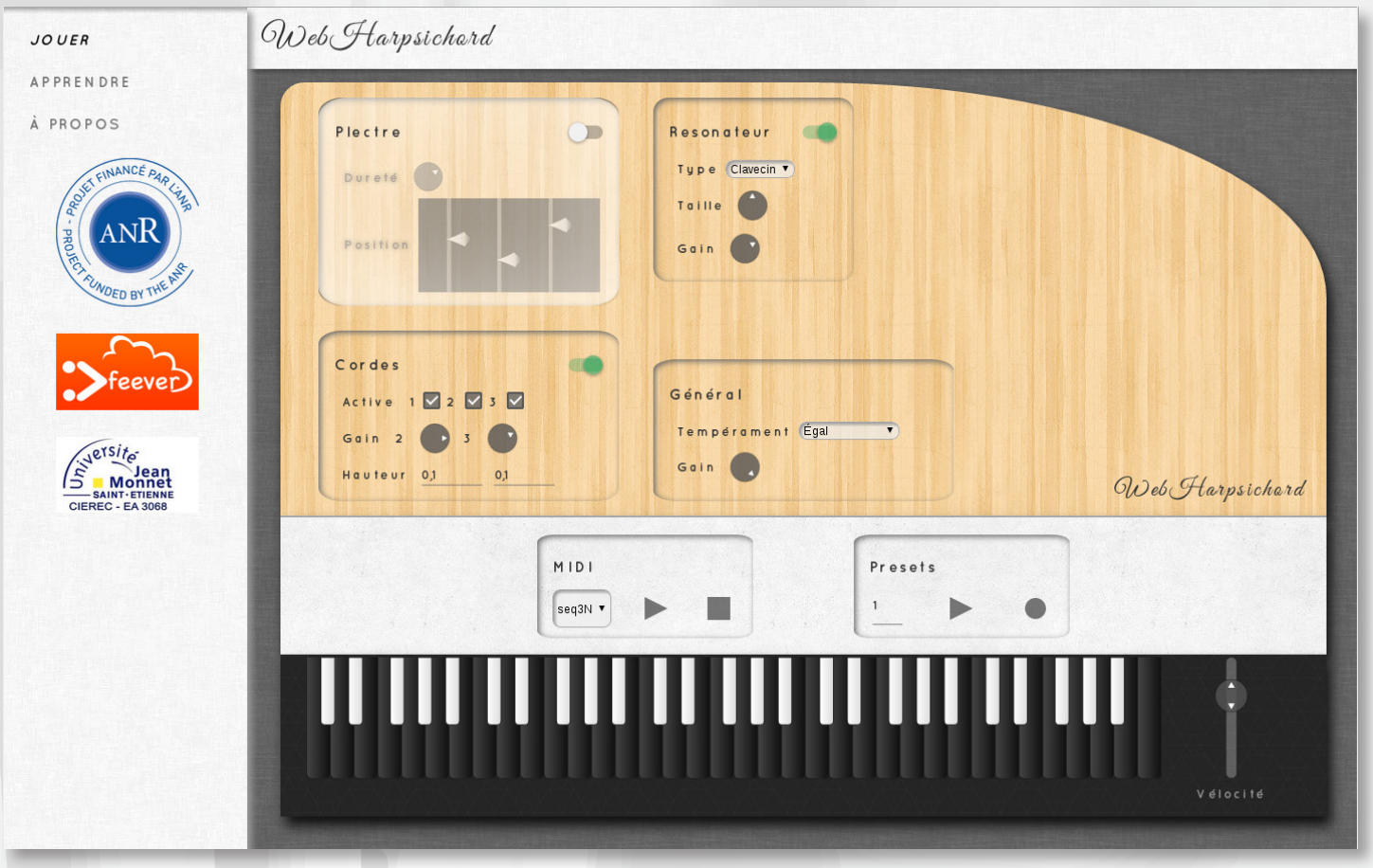
CIEREC - EA3068

Context

As part of the ANR Blanc Project FEEVER (ANR-13-BS02-0008, 10/2013, 42 months), the CIEREC (Saint-Étienne - France) was asked by the Museum of Art and Industry of Saint-Étienne to implement a real-time synthesized harpsichord for a special exhibition. A standalone version was created by Laurent Pottier and Luc Faure, all DSP edited in FAUST in a physical modeling approach, with a Max/MSP GUI (DSP based on Julius Smith and Romain Michon previous works on the Faust-STK). The second goal was then for Thomas Cipierre to provide a client-side real-time harpsichord on the web, in order to share a convenient musical researching and/or production tool, as much as an educational support to anyone, even with no prior computational and/or musical knowledge.

Project

The idea was thus to implement a polyphonic Javascript version of our model, thanks to the faust2asmjs script (which consists of compiling our FAUST DSP in an optimized polyphonic asm.js version), create instances, use regular Web Audio API nodes, and control DSP parameters through a responsive user-friendly GUI in Polymer. Some issues were of course to face, from trying to optimize the amount of computing resources needed by the physical modeling approach (especially for near zero amplitude data), to trying to be the more "web-standard" we could concerning the GUI, despite the unbalanced implementations of W3C requirements through the mainly used web browsers (Web Audio API, Web MIDI API, Web Components).



Links

Web harpsichord version : http://musinf.univ-st-etienne.fr/recherches/ClavecinHtml/web-harpsichord.html
Quick video demonstration of our first stand-alone version (FAUST DSP - Max/MSP GUI) : http://feever.fr/

Used technologies :