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Comprovisession: Improvisational real-time composing environment for multimedia session performance

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In this paper, a new idea called "Comprovisession" for multimedia performances with some improvisational performers is explored. An investigation of the problems of past systems is carried out with the aim of supporting improvisations not only for performances but also for compositions reflected on the structure of music. In addition to this, the improvisational performers will be able to grasp the interactions visually as well as by listening. As a concrete example, the special project "Jami-Girls' Band," and the system of this performance will be introduced.

Keywords: improvisation; live computer music; multimedia performance; interaction; real-time composition

In this paper, a new idea called "Comprovisession" for multimedia performances with some improvisational performers is explored. The author has been interested in improvisational real-time performances and in live computer music for over 20 years. As a composer/performer of computer music, he has been not only composing scores/programs, but also developing new instruments/systems as a part of his compositions. Touched off by previous research (Chadabe 1983, Chen 1994), the author advocated the compositional environment with intersection and interaction between musical model and graphic model, with chaotic algorithm and the keyword: "listen to the graphics, watch the music" (Nagashima 1995a, Nagashima 1995b, Nagashima 1998). In "Improvisession" which was developed/reported on previously (Nagashima 2002), the music department students who faced 24 computers (connected via network) enjoyed the improvisatorial music session by operating a mouse using RMCP (Goto *et al.* 1997). Next, the author advocated a new idea called GDS (global delayed session) music. With "Improvisession-II" which was developed/reported on previously (Nagashima 2003), people

connected via network using OSC (Wright and Freed 1997) and enjoyed the improvisatorial music session by operating their PCs in spite of a global delay (over 15 seconds). Next, an investigation of the problems of these past systems will take place focusing on the following two points: (1) the improvisation was limited to simple ad-libs in the framework of the fixed-style music, and (2) performers could not grasp the situation of each improvisation by listening to the mixed music only. Thus, one aim of this research is to support improvisations not only for performances, but also for compositions reflected on the structure of music. Another aim is to all improvisational performers to grasp the interactions visually as well as by listening.

MAIN CONTRIBUTION

A new project was organized in 2011 with five students, and we collaborated to develop special musical instruments. For students (performers), making instruments by themselves supported the freedom of thinking in musical improvisation. Next, we discussed the style of the performance, and decided that the five performers will each have a theme-color on the screen and each will also have a main part (instrument) sound in the space of sound. As a programmer (not composer) of this work, the author developed a new system (environment) which assigns graphic/musical elements to the screen/PA in real-time, by arranging information from all instruments (sensors) of the performers. On stage, the performers created the live performance with interactions by each improvisational control, and they easily recognized the situation by the screen.

Analysis and arrangement of the "Jaminators"

The "Jami-Girls' Band" (see Figure 1) was a special collaboration-education project of five 1st year students and the author in 2011-2012. Firstly, many “junk” Jaminators were purchased in e-auctions at very low prices. Then, the students (Ayano Kazuma, Chika Suzuki, Yuriko Tosaya, Mai Morikawa, and Akiho Yamada) and the author opened the Jaminators, removed the parts and analyzed the system. Then, we arranged and remodeled the Jaminator (see Figure 2). We removed the mother board and replaced the CPU with Arduino. The scan/detect lines of the keyboards/switches were connected to Arduino’s I/O ports, and we set the small high-power RGB-LED (PWM controlled) at the top of the neck. We added the 2-D acceleration sensors inside, and a MIDI interface to send information to the host system. Students did not have sufficient knowledge of electronics, so they could only assist, but

they studied and learned a great deal. All MIDI outputs of the five Jaminators were merged by a special machine produced by the author.

Production of graphics/sound parts

The title was “Revolution-J”, and Figure 3 (left) shows a conceptual sketch. As creators, students produced movies and images for the graphic part of the performance, and recorded many sounds from mobile phones as sonic materials (see Figure 3, right). Next, they discussed the style of the performance and decided that the five performers each have a theme-color on the screen, and each have a main part (instrument) sound in the sound space. The performance was a kind of battle-session game of sounds and graphics on stage.

They premiered this work in the “Inter-College Computer Music Concert“ (Tokyo Metropolitan University) in December 2011. The second performance was in the "Make Ogaki Meeting 2012.”

As a programmer (not composer) of this work, the author developed a new system (environment) with a Max5/MSP/jitter environment. This patch assigns graphic/musical elements to screen/PA in real-time by arranging information from all instruments (sensors) of the performers. On stage, the performers created the live performance with interactions by each improvisational control, and they easily recognized the situation by the screen.

Figure 4 (left) shows a screenshot of the main patch. As a PA staff, the author checked these indicators beside the stage. If some trouble occurred, buttons/sliders which are normally controlled by MIDI could be adjusted. Figure 4 (right) shows a screenshot of the graphic-master subpatch. With jitter, the screen was divided into 4 areas with 1 small area in the center. Each of these 4 areas grows bigger when its performer makes a sound, and the center area moves slowly and grows bigger when its performer makes a sound. Performers knew well the relation between the sound and the graphics in the rehearsal, and changed them as creators.

Figure 5 (left) shows a screenshot of one of the performers’ subpatch. Each performer creates their own sounds, images, and movies, so this composition is not a "fixed program," but only an "assign system" for contents with their performance. This Max5 patch is only the environment in which five creators/performers act freely. Figure 5 (right) shows a screenshot of the graphic mixing subpatch with jitter.

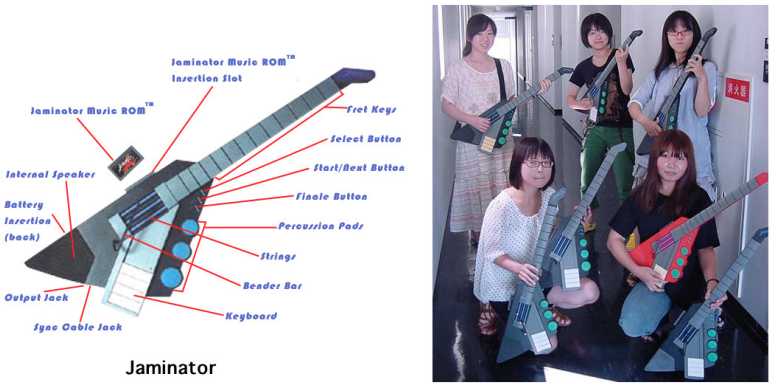

Figure 1. Jaminator (left) and "Jami-Girls' Band" (right).

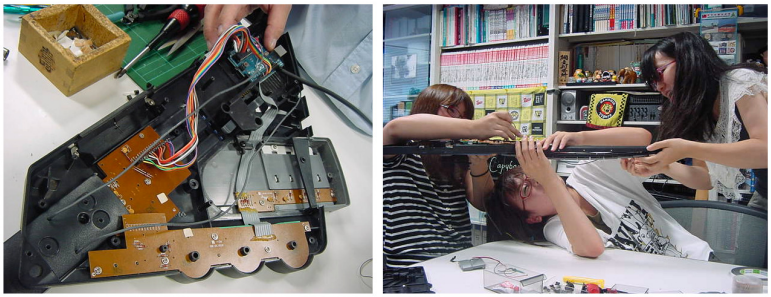

Figure 2. Arranging and remodeling of the Jaminator.

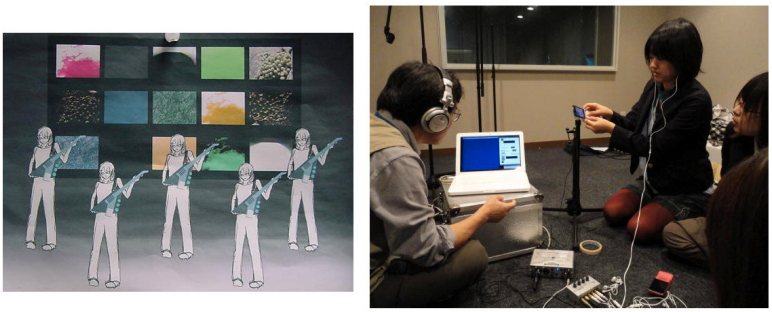

Figure 3. Conceptual sketch (left) and the recording of sounds (right). (See full color versions at www.performancescience.org.)

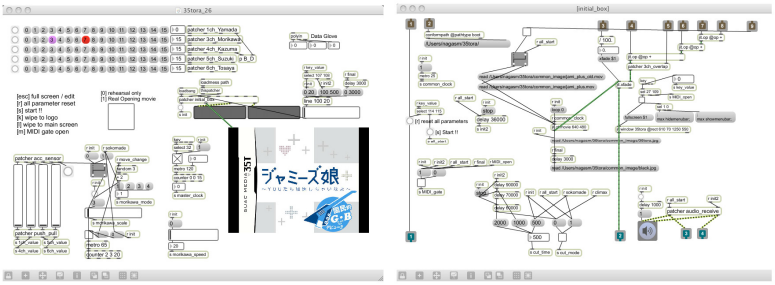

Figure 4. Main patch (left) and the graphic master subpatch (right).

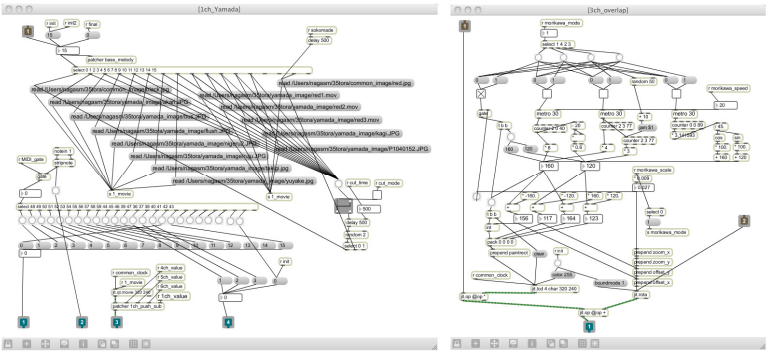

Figure 5. One of the performers' subpatches (left) and the graphic mixing subpatch (right).

Figure 6. Original poster of "Jami-Girls' Band," given by the engineer who originally designed the Jaminator in the famous design studio IDEO (See full color versions at www.performancescience.org.)

IMPLICATIONS

The "making" (http://www.youtube.com/watch?v=aXv-NAnt6iw) and the "performance" (http://www.youtube.com/watch?v=Midqvqej-hw) videos of this project were uploaded to YouTube. Many specialists and musicians gave positive evaluations. We were able to benefit from many useful arguments and new possibilities. Figure 6 shows the poster of this project.

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