

Rencon 2005

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Contest for performance rendering systems, Rencon, was held concurrently with the panel session entitled “Software Tools for Expressive Music Performance” in International Computer Music Conference (ICMC) 2005. In this paper, we describe the contest and the panel session. The contest consisted of the compulsory section where Mozart’s Minuette KV 1 (1e) was the compulsory music. The contest winner was decided according to the voting prior to the panel session. Five panelists in the panel session introduced Rencon and research on expressive music performance. The panel session was exciting by the active discussion with the full audiences.

1. Introduction

Contest for performance rendering system, Rencon, is a yearly international event that started in 2002. It has roles of (1) pursuing evaluation methods for systems whose output includes subjective issues, and (2) providing a forum for researchers of several fields related to music expression. Rencon is a landmark research project whose ultimate goal is the development of a performance-rendering machine that will win the Chopin contest by 2050, like RoboCup. In the past, Rencon was held as a workshop associated with a musical contest that provided a forum for presenting and discussing the latest research in automatic performance rendering and, more generally, computer-based music performance research.

In 2005, Rencon was held concurrently with the panel session entitled “Software Tools for Expressive Music Performance” in International Computer Music Conference (ICMC) 2005 [ICMC2005]. In this paper, we describe the outline of the contest and panel session.

2. Rencon

2.1 Performance rendering systems

A performance rendering system generates music performance of any instruments. Music performance is the object to embody researchers’ theoretical idea, whether it is mostly with mathematics, artificial intelligence, or cognitive science. A system generates a performance for a piece of music following music analysis and performance learning. Sometimes the rendered performance is post-processed for the purpose of modifying expression of rendered performance manually. These systems have been evaluated individually with different music and measure.

2.2 Contest

In 2005, Rencon was held concurrently with the panel session. Different from the prior Rencon, the contest was held before the panel session and the result was reported at the panel session.

We organized the compulsory section and the open section as usual. The compulsory section would specify rather

rigid commonality in playing musical data. Music submission was restricted to the Minuette KV 1 (1e) by W.A. Mozart. A GigaPiano (Nemesys) [GigaPiano] was supposed to be used as the common sound source. In the open section, audiences would listen to anonymously generated performances. No musical genres, instruments, nor sound sources were specified in this section. Performances by instruments with new interfaces, as well as synthesized singing voices, wind, strings, and percussion were welcomed.

Since there was no music submitted to the open section, only the compulsory section was realized. Five performances, PopE [PopE], DM (default) [DM], pDM (Fixed position) [pDM], pDM (Moving), and COPER, were evaluated according to the instruction. Subjects listened to the randomly performed music and evaluated six adjective scales in 11 degrees (0 to 10, where 10 is the maximum and 0 is the minimum). For each scale, the level 10 was supposed to be given to a human performance. The six adjective were newly introduced scales to the contest. They are as follows:

1. Level of technical security. If a performance sounds as if it was made by a technically skilled performer, a good point is given to the performance.
2. Rhythmic accuracy. The higher rhythmic accuracy is given the higher point.
3. Human. If a performance sounds as if it was made by a human, a good point is given.
4. Musical. If a performance sounds very musical, a good point is given.
5. Expressive. If a performance is very expressive, a good point is given.
6. Overall quality. If the overall quality of a performance is high, a good point is given.

The contest winner was decided according to the voting prior to the panel session. Ten subjects, aged from 22 to 40 and have played an instrument from 4 to 30 years, participated the contest. Table 1 shows the result of each

Table 1: The result of Rencon 2005

System name	Technical security	Rhythmic accuracy	Human	Musical	Expressive	Overall quality	Average
PopE	5.80	4.98	7.18	5.78	5.79	7.50	5.91
DM (default)	6.94	6.80	5.30	5.54	5.30	5.80	5.98
pDM (fixed)	3.99	5.00	4.49	3.23	2.88	3.62	3.92
pDM (moving)	6.08	4.64	5.43	5.62	6.56	5.62	5.67
COPER	2.85	1.77	4.12	2.10	3.74	3.03	2.92

performance. From the average value, the winner was DM (default).

3. Panel session—Software Tools for Expressive Music Performance

Rendering expressive performance in itself involves complex perceptual, cognitive, psychological, and aesthetic processes. It therefore has a broad spectrum and constitutes a challenging research theme for computer music research. Moreover, music performance is a promising field for investigating basic principles of human emotion, intelligence, creativity and individuality. Thus the panel theme is the interest for many researchers of the related areas.

Five panelists in the panel session introduced Rencon and research on expressive music performance. Most of the panelists have been working on expressiveness of music. Panelists and their presentations are as follows. All of the presentation PDFs are uploaded on the Rencon WEB site [Rencon].

- R. Bresin (KTH, Sweden). “Software Tools for Expressive Music Performance.” As a moderator of the session, he summarized Rencon and led the session towards the future of research in automatic and interactive music performance.
- R. Hiraga (Bunkyo University, Japan). “Rencon overview.” Briefly described the purpose and history of Rencon.
- G. De Poli (Universita di Padova, Italy). “Research trends in automatic music performance.” His talk surveyed from the music expression to comparison of performances.
- A. Friberg (KTH). “Recent advances in the KTH performance rule system.” *pDM* is a real-time DM, the empirical based rendering system with the emotion 2-D space, with which he demonstrated to generate performances.
- R. Ramirez (UPF MTG Barcelona, Spain). “Expressive performance modeling in the ProMusic project.” The project generates performances for wind instruments.

The panel session room was full, with people sitting on the floor during the first half of the session (then some of them left for another parallel session). It was exciting by the

active discussion with the audiences. As in the talks of the panelists, music has the wide range of meaning, the genre and the instruments for example, thus performance rendering needs different approach for different music. Many people also have the interest in the future Rencon. An idea is to let Rencon far beyond the music contest by human player. For example,

- Competition of *sad* performances by Xenaxis’s.
- Competition for non-existing (abstract) instruments.

The competitions are not only for new performance styles but we have no ways to evaluate their qualities because they are the new experiences for us. About making a performance rendering system win at Chopin contest, the system should generate a performance that *surprises* audiences. For that, breaking the performance rule is necessary.

4. Conclusion

In 2005, Rencon was held concurrently with the panel session. Since there are unlimited research issues in *expressive music*, the panel session was active with discussion.

References

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