

STRATEGIES FOR STRUCTURED *ORK PERFORMANCE CHOREOGRAPHY: INTEGRATING TAIJI MARTIAL ARTS INTO L2ORK REPertoire

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ABSTRACT

One of the increasingly important challenges in the laptop orchestra performance practice is performers' physical presence and choreography. Relying primarily on hyperinstruments that offer unprecedented flexibility, and yet by doing so lack preexisting performance tradition and supporting metrics, laptop orchestra composers need to navigate a minefield of gestures that have an inherent association with a non-musical activity and thus may be inadequate in conveying musical tension to the audience. More so, commonly without a preexisting performance practice novel gestures need to be clearly annotated in the score. To address these challenges the Linux Laptop Orchestra has sought an increasingly structured approach to physical choreography, culminating with the integration of elements of Taiji mind body practice and supporting dynamic and discipline-agnostic performance score infrastructure. Based on the feedback from performers and audience alike, L2Ork has attained a more engaging stage presence, an increase in ability to convey tension and individuality, as well as means for audience to observe and assess emerging performance practice. In the following presentation we wish to share lessons learned through this process and offer strategies that may facilitate a wider adoption of this approach within the laptop orchestra community and beyond.

1. INTRODUCTION

One of the advantages of the interactive computer music performance interfaces is their inherent flexibility. Each computer-based hyperinstrument [1] can vary dramatically from piece to piece in terms of its interaction techniques, supporting hardware, performance practice, and ultimately the ensuing sound. When placed within the context of a laptop orchestra, this flexibility also poses some unique challenges. Unlike smaller setups that typically base its stage aesthetics on a DJ-like free-form improvisation, the very use of the the word "orchestra" imposes a new set of expectations and responsibilities we commonly associate with a large organized and coherent group of live performers. Consequently, one of the increasingly

important challenges is performers' physical presence and choreography. Hyperinstruments allow for a wide array of performance practices and yet by doing so lack preexisting observable skill and virtuosity metrics, particularly when associated with non-traditional music material. More so, unlike traditional instrument performance practice with its rich vocabulary of gestures that further strengthen the emotional impact, convey the difficulty and tension associated with the material, and typically do not require explicit annotation within the context of a music score, laptop orchestra composers need to navigate a minefield of gestures that have a strong preexisting association with a non-musical activity and thus pose a problem in terms of conveying musical tension to the audience (e.g. typing on computer keyboard is more likely to be perceived as typing an email rather than performing an instrument) and furthermore require clear annotation of their use in the score. To address these challenges the Linux Laptop Orchestra (L2Ork) [2] has sought an increasingly structured approach to group choreography.

L2Ork relies exclusively on Nintendo Wiimote [3] and supporting extensions as its input device. The decision to use Wiimotes was initially to ensure compatibility with other, mainly Macintosh-based *Orks, as the Linux-based notebooks used by L2Ork do not provide embedded accelerometers. Inadvertently, driven by Wiimote's rugged design, greater range of body motion, haptic feedback potential, and independence from stationary hardware, a new performance aesthetic emerged. Following early concepts that borrowed largely from traditional instruments (e.g. bowing motion and positional mallet-like hits) and allowed for the design and production of the supporting software frameworks, it quickly became apparent that to project a convincing stage presence and coherence, physical motion needs to be carefully cataloged and controlled. While devising unique piece-specific gestures (e.g. heartbeat in Half-Life for L2Ork and solo female narrator) continued to be an important aspect of the overall choreography, the majority of the effort shifted towards the integration of well established choreographies. Taiji (Tai Chi) martial art and mind body practice proved to be an ideal choice for its fluid, broad, and by and large

flexible set of motions. More so, given that a part of L2Ork's mission focuses on outreach in K-12 education, a growing body of research in Taiji's mind body benefits [4,5] further enhanced its potential to seamlessly deliver a fusion of music, technology, science, physical exercise, attention, and focus [6].

2. IMPLEMENTATION

During the integration the ensemble faced a number of challenges. One was identifying gestures that are expressive, engaging, flexible enough to encourage individuality while ensuring consistency, clearly exhibit connection between the sound and motion, and yet are not too difficult as to prevent participants from producing pleasing and consistent results. Considering that L2Ork attracts students from across the campus, many of whom have no prior musical and/or choreography experience, there was a need to devise an interactive score delivery system that would convey both music and gesture information in a clear and concise format without relying upon traditional notation. The system also required a supporting set of rehearsal tools that would facilitate practicing isolated sections and scrubbing through the work's timeline from both the central computer and individual stations. Latter could be used for practicing parts outside group rehearsals. Finally, the system needed to be flexible enough to accommodate seamless transitions between highly structured and improvisatory sections. For this purpose a dynamic score reader and follower was devised using pd-l2ork (L2Ork's unique version of Pure-Data) [7]. The resulting system provides information on desired motions, their duration, dynamics, and other expressive parameters. Relying upon Wiimote's rumble feature the system also offers integration of haptic feedback to facilitate learning as well as monitoring of relevant parameters, such as beat, tempo, strength of a particular action, etc.

The ensuing choreography has added a new dimension to performance, requiring streamlining of other aspects of the input interface to abate the learning curve. The first two pieces written in 2011, *Serene* and *Rain*, rely exclusively upon the Taiji choreography. Shedding complex digital switches and the use of Nunchuk whose dangling wire limited independent movement of the arms in favor of the MotionPlus gyro sensor the system was able to provide more reliable readouts of sweeping Taiji gestures, particularly the ones executed at constant angular speeds. The streamlining of complex controls into fewer, more powerful and easily juxtaposed states in conjunction with the analog body motion has resulted in greater expressive bandwidth and observable virtuosity potential.

3. CONCLUSIONS

Based on the feedback from performers and audiences alike, the said transition has helped L2Ork attain a more engaging stage presence, an increase in ability to convey tension and individuality, as well as means for audience to observe and assess emerging performance practice. Furthermore, hyperinstrument's standardization has allowed us to attain greater level of proficiency, paving way towards metrics for good performance practice and virtuosity. We anticipate the newly established foundation will in the long run help audiences develop a better understanding of the said metrics and with it sophistication necessary for the assessment of virtuosity.

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