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HELO: THE LAPTOP ENSEMBLE AS AN INCUBATOR FOR INDIVIDUAL LAPTOP PERFORMANCE PRACTICES

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ABSTRACT

In this paper we seek to outline the methodology and philosophy of the Huddersfield Experimental Laptop Orchestra (HELO). Placing the ensemble in context of similar work, we discuss the Do-It-Yourself (DIY) laptop instrument design paradigm, and the incubatory benefits that arise from participant-centered approach to ensemble rehearsal and performance.

1. INTRODUCTION

The Huddersfield Experimental Laptop Orchestra (HELO) was established in 2008 by S. Hewitt as part of the undergraduate music technology program at the University of Huddersfield. Formally part of the Directed Ensemble module, HELO focuses on musical performance and rehearsal skills in a small ensemble setting. HELO has developed out of Hewitt's ongoing research PhD in composition, focusing on different approaches to using the laptop as an ensemble instrument. HELO aims to develop participants' performance practice and ensemble playing skills, especially amongst technically inclined and competent music technologists. It also seeks to promote laptop ensemble composition by exploring notational and rehearsal strategies and offering best practice suggestions.

In addition to the assessed undergraduate performers, a post-graduate extension to the group also exists, named HELO.pg. Often these groups combine under the HELO moniker to allow larger ensemble performances, and to facilitate the sharing of individual approaches.

HELO was born out of the ubiquitous nature of laptops within the higher education environment and the proliferation of real-time musical synthesis, processing and DAW technologies. HELO players exploit a wide range of applications to realise musical intention including Max/MSP, Pd, ChucK, Supercollider, Logic and ReNoise.

1.2 An xELO not a xLOrK

While HELO shares many characteristics with other laptop ensembles operating in academic environments, there are some significant differences in practice. Unlike the Princeton Laptop Orchestra and others, HELO does not employ a global meta-instrument design [10], but rather embraces a lack of hardware uniformity as a strength[1]. It also rejects the operating system uniformity of the Virginia Tech Linux Laptop Orchestra [12]. While this lack of instrument uniformity is similar to the situation presented by the 'League of Automatic Music Composers' [1] it should be noted that hardware is generally not subverted in use (no hardware hacking is carried out), nor is such an interconnected group forged. This diversity shares similarities with the variation found in professional laptop ensemble settings: for instance, within the 'Evan Parker Electro-Acoustic Ensemble', laptopists Walter Prati, Joel Ryan and Lawrence Casserley use diverse hardware to achieve individually developed instruments[3].

These strategic decisions inform the musical direction of the laptop ensemble significantly, with the diversity of hardware and software allowing compositional, performance and rehearsal issues to occur mainly at a creative level, rather than seeking to achieve technical goals. Rehearsals are focused on musical content, not on DSP-instrument trouble-shooting. To this end players are expected to bring a working instrument. HELO has resisted developing technical tools such as the NRCI suite of Pd tools used by the Milwaukee Laptop Orchestra [2], seeking rather to promote individual approaches and solutions tailored by each performer. Consequently HELO has no fixed setup and instead aims to adjust its approach to suit a particular performance opportunity. Players are solely responsible for their own setup and have a duty to ensure their ability to perform.

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[1] For a sample of HELO's productions, including audio samples, pictures and movies, please visit http://eprints.hud.ac.uk/7397/

2 THE HELO APPROACH

As part of the Directed Ensemble module, HELO players are assessed on their individual and group performance from a purely musical perspective, common to the sentiments of Trueman: 'our focus need always remain on the music we make'[11]. Players focus on their sonic output with the tools they are familiar and confident with rather than attempting to learn tools specific for the task. Consequently, while students are responsible for the working order of their instrument, assessment is strictly based on musical performance.

2.1 The Instrument

2.1.1 Hardware

HELO has no minimum computing hardware specification: netbooks as well as high specification laptops have been used. The only requirement of the hardware is reliability to deliver performance as and when required. This setup has significant implications for composed works, as any bespoke software required may often need to run on a diverse collection of hardware.

The method of sound reinforcement used is also a significant consideration. In this regard, two particular amplification approaches have found favor, with the first being the use of built-in laptop speakers (employed to perform Faultlines [5]). Similar to the Powerbooks Unplugged approach [9] this offers convenience, ease of use and portability at the expense of audio quality, amplitude and frequency range. The physical portability achieved using this method allows the ensemble to become a freely-positionable multi-speaker array, allowing for dynamic placement of players, including within the audience. This approach is not dissimilar to that of the Stanford Mobile Phone Orchestra [13].

The second setup involves the use of individual guitar practice-combo to provide each player with mono amplification. The advantages of this approach are numerous in that they offer an increase in amplitude (required for larger venues), improvements in quality and frequency range while allowing players' set-ups to be self contained and easy to transit: indeed HELO players have used in previous gigs public transport to and from venues. Players are welcome to utilise additional hardware such as midi keyboards, control surfaces, web cameras, or wireless devices (e.g. Wii-motes) as they wish, though they are responsible for any additional complexity introduced.

It might seem strange that, with access to a world-class sound system, The HISS[2], the favored setups are low-fi.

More complex hardware systems have indeed been explored utilising remote audio mixing systems (netmixer [8]), network based clocks, serial DSP processing and other bespoke systems with varying degrees of success. In keeping with the performance focus of HELO, the suitability for performance of these systems is judged not only on musical outcome but also on repeatability, reliability and ease of setup. Therefore, while these tools facilitate additional compositional- and performance-based research, the unmanageable complexity they introduce when combined with the diversity of HELO instruments regularly outweighs their benefits.

2.1.2 Software

An inclusive and flexible approach to the use of hardware within the ensemble also implies a similar approach towards software. Players within HELO are welcome to use any software they wish, ranging from Max/MSP instruments to DAW session files. Once the approach is established as reliable for live performance, considerations such as cost, familiarity and suitability for the task are taken into account. Often a player will utilise multiple applications within a single performance, seeking to use the most appropriate tools to meet the musical requirement. A performer's choice of software often dictates his role within a performance, as the perceived ease of achieving a certain musical goal will naturally attract a player to that role.

In some situations custom software has been written to realize particular compositions. Where this is the case, responsibility for the software is transferred to the composer. This interventionist approach is not encouraged within the ensemble, however some situations have arisen where it has been judged to be necessary. When this is the case software has been written in high level languages such as Max/MSP to avoid many compatibility issues.

2.2 The Music

2.2.1 Repertoire

The lack of uniformity in players' equipment inhibits wide-scale software development activities, with the rare exceptions mentioned above. As a result, compositional approaches are mainly directed towards players realising interrupted instructions through individual systems. This is in marked contrast to the practice of the Worldscape Laptop Orchestra [6], who exploit composition specific applications which typically require a similar contribution from each player (i.e. hive mentality behavior).

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[2]The Huddersfield Interactive Sound System (HISS) is a

50+ high-spec loudspeaker orchestra dedicated to concert presentation of acousmatic and mixed music with special exploration of acoustic radiation (www.thehiss.org).

This DIY player individuality makes HELO ideally suited to explore experimental compositions, text scores and compositions for other instruments. HELO has found structurally focussed text and graphical scores to be particularly suitable to the diverse interfaces and wide timbral spread of the group. This compositional bent, reflected in the experimental title of the ensemble, has caused HELO to take particular interest in developing improvisational skills. Improvisational practice has become a staple of the HELO methodology due to its intrinsic suitability to the diversity of the ensemble.

2.2.2 Rehearsal Approach

At the beginning of rehearsals, students are given the responsibility for setting up all equipment required. This focus encourages players to arrive prepared, as well as guaranteeing familiarity at concert setups. After an initial 'jam' serving as both soundcheck and warm-up, rehearsals typically focus on realising a specific composition or focussed improvisation. The initial jam contributes significantly to the flow of the session, easing players into the rehearsal situation and acting as a testing ground for individual performance approaches.

Throughout the rehearsal, opportunities are created for critical reflection and discussion, often resulting in novel solutions to difficulties encountered. Any problems pertaining to an individual setups are noted but no time within rehearsal is spent resolving these. Instead, players are encouraged to adapt to the means at their disposal, which is considered part of the skill of being an improviser. Specific solutions may then be explored post-rehearsal on a one-to-one basis.

3 OUTCOMES

3.1 Public performances

Since its inception HELO has performed as part of the Huddersfield Contemporary Music Festival Revolutionaries Project 2008 and 2009[7], GEMdays and the Sound and Music 2009 Expo with the inclusive improv collective[4].

3.2 Player development

One of the most significant outcomes of HELO is the opportunity for music technology students to participate in an ensemble performance setting. In this respect, HELO can be seen as a platform for converting non-real-time individualistic studio practice into real-time collaborative performance practice, with benefits for both creativity and efficiency. The challenges of real-time musical interaction equip these students with stronger listening skills, while providing an opportunity to contextualise their individual

work within a wider ensemble dynamic. Additionally players gain an increased level of competency with their chosen applications, providing transferable skills for other modules within their programme of study and beyond. Their areas of competency are also expanded as particular performative challenges are met, causing students to focus on elements normally outside their interests. Indeed, for some students, participation in HELO might be their first tangible involvement with experimental or contemporary music, contributing to the broadening of their musical horizon.

The HELO philosophy offers accessibility and increased democratisation regarding participation within a laptop ensemble. Players are not required to have any previous laptop playing skills, though they are expected to have command of a computer music application. This approach, alongside the removal of additional barriers (such as specific hardware or software requirements and the implied cost of these) increase participation beyond that which can be institutionally funded. In welcoming diverse resources the focus of responsibility within HELO is on the individual, prompting development along a self-directed syllabus. Another consequence, for the ensemble as a whole, is to create a potent environment beneficial to individual laptop practice development.

4 CONCLUSIONS

4.1 Player Incubation

Our musical-based approach to laptop ensemble direction -rather than its technical means- provides an ideal incubator for the development of real-time laptop performance skills, especially amongst personnel with only limited performance experience. An inclusive point of entry is provided at the start of the programme, in order to encourage participation at any level. Initial practice then invites players to actively refine their existing skills, particularly those that remain undernourished in their studio-practice. These typically include aspects such as gestural control, reactivity, and the development of listening and improvisation skills.

4.2 Transferable Skills

Through an experiential process of rehearsal, reflection and development, a player's existing compositional and technical skills can be converted into real-time performance skills. These skills are fostered, better equipping music technology students who otherwise may have only limited performance options, with their typical modest aural and instrumental training. Additionally a laptop ensemble can offer opportunities for wider collaboration with instrumental performance or

composition students, thus providing an opportunity for sharing expertise and methodologies. In turn, these skills can be reapplied to various areas of the undergraduate study programme, including modules in studio-based composition, interactive sound design and self-directed creative projects. In addition, active engagement in performance has lead some players to develop a real-time workflow which helped them meeting submission targets.

4.3 Simplified Logistics

The laptop ensemble does not need to be a complex beast. Assigning responsibility to students for their own equipment simplifies concerts and rehearsals, but also capitalises on the rich sonic results made possible by a diverse and flexible approach. The simple sound reinforcement provided by the use of guitar amplifiers is a good compromise of cost, quality, frequency range and portability. This solution meets the needs of players in terms of individual monitoring, as well as providing forward projection. This setup has proven flexible with use in venues including bars, churches and concert halls.

4.4 Holistic Development

With a focus on musical performance HELO challenges technically minded players to consider artistic, composition and performance aims. Likewise, creatively strong players are challenged to consider and refine the technical approaches they depend on. This duality of outcomes encourages development through emulation, while the ensemble setting provides natural mentoring and support.

5. FUTURE AIMS

Within HELO we plan to continue developing the incubation, environment encouraging players to expand their performance skills and develop greater musical communication within the ensemble. We intend to explore effective methods of notational transcription, in order to further focus on compositional practices which are independent of the laptop-instrument used by each performer.

We believe that this Do-It-Yourself (DIY) approach to hardware and software considerations empowers HELO players to develop tailored-made systems that meet their personal performance needs and foster the arousal of individual voices on the laptop instrument.

REFERENCES

[1] Brown, C., and Bischoff, J. "Indigenous To The Net: Early Network Music Bands in the San Francisco Bay Area." http://crossfade.walkerart.org/brownbischoff/IndigenoustotheNetPrint.html last checked Dec 2009

[2] Burns, C. and Surges, G. "NRCI: Software Tools For Laptop Ensemble" Proceedings of the International Computer Music Conference Belfast, UK 2008

[3] Cass et al. 8th Nov 2007 interview "The Laptop Virtuoso DSP Instruments in Free-Jazz Improvisation"

[4] "Expo Live @ Holy Trinity : Expo Leeds" http://leeds.expofestival.org/index.php?/whatson/expo-live--holy-trinity/ last checked Dec 2009

[5] "Faultlines" Booth, G. - http://helo.ablelemon.co.uk/doku.php/materials/Faultlines last checked Jan 2009

[6] Harker, A., et. al. "The Worldscape Laptop Orchestra: Creating Live, Interactive Digital Music For An Ensemble Of Fifty Performers" Proceedings of the International Computer Music Conference Belfast, UK 2008

[7] "HELO @ HCMF Laptop Revolutionaries" http://helo.ablelemon.co.uk/doku.php/events/performances/2009-11-18_hcmf_laptop_revolutionaries last checked Dec 2009

[8] "Net Mixer v2" Hewitt, S. http://www.inclusiveimprov.co.uk/netmixer last checked Dec 2009

[9] "Powerbooks UnPlugged" http://pbup.goto10.org/ last checked Dec 2009

[10] Trueman, D. et al. "PLOrK: The Princeton Laptop Orchestra, Year 1" Proceedings of the International Computer Music Conference New Orleans, USA 2006

[11] Trueman, D. "Why A Laptop Orchestra?" Organised Sound 12/2: 171-179

[12] "Virginia Tech Department of Music L2Ork >> FAQ - Linux Laptop Orchestra" http://l2ork.music.vt.edu/ last checked Dec 2009

[13] Wang, G., et al. "Do Mobile Phones Dream Of Electric Orchestras?" Proceedings of the International Computer Music Conference 2008