STUDIO REPORT: CREAMA – CENTER FOR RESEARCH IN ELECTRO-ACOUSTIC MUSIC AND AUDIO AT HANYANG UNIVERSITY

Jongwoo Yim   *Richard Dudas*

Center for Research in Electro-Acoustic Music and Audio (CREAMA)
Hanyang University School of Music
222 Wangsimni-ro Seongdong-gu
133-791 Seoul, South Korea

ABSTRACT

The computer music studios of the composition department at Hanyang University in Seoul, Korea have recently been linked to a newly-created autonomous organization called CREAMA: the Center for Research in Electro-Acoustic Music and Audio. Over the past handful of years the Hanyang University's studios have been active both nationally and internationally in the realms of electronic and computer music pedagogy, research, creation and performance, and the new connection with CREAMA will help continue to develop these activities and promote their visibility outside the confines of the university. Nonetheless, the studios and the university's computer music degree program (recently expanded to encompass both undergraduate and doctoral-level students) are both closely associated with the activities of the center.

1. INTRODUCTION

The computer music studios at Hanyang University were founded in 1996 by composer Donoung Lee, and among the first academic computer music studios in Korea, although a graduate degree program in computer music was only established in 2004, when the studio was given its current physical location with the School of Music [3].

The Center for Research in Electro-Acoustic Music and Audio — CREAMA — was officially registered in 2012, although it has been active since 2005 under the auspices of the Hanyang Electro-Acoustic Music Institute. The center's principal aims are:

- to increase the visibility of electro-acoustic music within the sphere of contemporary music,
- to foster education and understanding of both contemporary acoustic and electro-acoustic music,
- to promote the use of new technologies and methods in the arts,
- to spearhead technological research in the arts and
- to nurture collaboration and exchange with similar centers and with other disciplines in the arts.

As a center, CREAMA undertakes the organization of workshops, seminars, symposia and concerts featuring a renowned array of international composers and performers of electro-acoustic and contemporary music. The center also serves as a springboard for the development of musical software and hardware technologies, via collaborations with other university departments and with partners in industry. CREAMA is also active in cultivating close relationships with other centers, institutes and organizations specializing in technology and the arts — both in Korea and internationally — in order to provide interdisciplinary exchanges between different sectors of the arts, thereby exploring new artistic directions for the 21st century.

2. FACILITIES

The studios linked to CREAMA are located on the main floor of the Hanyang University music building, where they are used for classes, seminars, workshops, musical projects (concerts and rehearsals), study and research.

2.1. Computer Music Studio

The larger of the two physical studios is the Computer Music Studio, which is currently equipped with 10 channels of audio: a near-field quadraphonic setup comprised of four EAW JFX-88 speakers, a wide/distant quadraphonic setup comprising four Bose 802 speakers and a Genelec Stereo monitor pair. The studio currently uses a Yamaha O2R digital console, and has a quad-core Mac Pro with Digidesign Digi002, and Eventide Eclipse. The computer music studio also includes a portable studio setup which is normally integrated into the studio itself, but able to travel independently for our increasing number of concerts outside the confines of the university. The portable studio and its equipment is discussed in detail, below. One side of the studio is equipped with an upright acoustic piano and has been left relatively empty in order to provide rehearsal space for compositions using technology. In its role a hub for computer music education, the studio contains a dozen headphone-based student workstations using a mix of iMac and Windows-based computers. Furthermore, we have recently resurrected an analog workstation based on a small Deopfer A-100 Analog Modular System, to be used for both music and instruction.

2.2. Electro-Acoustic Studio

The Electro-Acoustic Studio, also on the main floor of the music building, is somewhat smaller and has been recently redesigned and equipped with a stereo Genelec monitor pair and a balanced 8-channel circular array of ESI nEar05 speakers for the creation and diffusion of multichannel pieces. The studio also has an upright acoustic piano and is our main space for recording acoustic sound sources; it has a large Mackie mixing console, alongside an ageing but useful ProTools Control 24. The studio has quad core Mac Pro with a MOTU 896HD interface, in addition to an older G4

connected to the ProTools system, a TC Electronic 6000, and Lexicon 960L effects unit. Both studios are equipped with a variety of software, including but not limited to Digidesign's ProTools, IRCAM's Forum Software, and Cycling '74's Max/MSP 6.

2.3. Portable Studio

We have additionally created a "portable studio" setup, exclusively for use in concert, that normally resides within our main Computer Music Studio. Since most of the concerts with which we are involved include real-time works, the portable setup is comprised of a MacBook Pro with Max/MSP and a MOTU 896HD Mk3, a Mackie 1604 VLZ mixing console, EQ unit and TC Electronic 4000 reverb unit. We have an additional set of four Bose 802 speakers that can be used with this portable setup, but for many concerts we still prefer to partially dismantle the main studio and use the four EAW JFX-88 speakers.

3. CONCERTS

One of CREAMA's significant activities has been organizing and curating concerts involving technology. Throughout the year we hold electronic music concerts organized both independently and jointly with other professional organizations and ensembles. Through these collaborations we strive to engage and enchant musicians and audiences alike with meaningful, artistic uses of technology. Although a main focus of our work is mixed instrumental and computer music destined for the concert hall, we are equally at home participating in and aiding with installations and presentations of fixed-media compositions in alternative spaces such as galleries, museums and studios. As a computer music center our goal has been both to help demystify the use of technology for performers, as well as to educate audiences that technology can be used for genuine artistic purposes in the classical music domain, instead of simply as a gimmick or curiosity. Consequently, our role as an active musical center for electronic and computer music has allowed us to build a highly respected reputation among the pool of musicians involved with contemporary music, and thus contribute to the cultural life of contemporary music in Seoul, as well as throughout Korea and on an international level.

3.1. Hanyang New Music Festival Concerts

The Hanyang New Music Festival is a biannual event, inaugurated in 2007, spotlighting a diverse array of new music from its historical origins in the 20th century to recent compositional trends. Each year our studios have contributed to the festival. Of particular note were our contributions to the 2007 and 2009 festivals. For the former, Ancuza Aprodu and Thierry Miroglio performed a concert of music for piano and percussion and clarinetist Peter Furniss (UK) was invited to present the Korean premiere of Boulez' *Dialogue de l'ombre double* as part of a concert of works primarily for clarinet and electronics. For the 2009 festival, we were able to both invite the Ensemble Orchestral Contemporain (EOC) with conductor Zsolt Nagy (France) and assist them with the performance of Tristan Murail's *Allégories* as part of a concert of music by

French composers, and collaborate with the internationally-renowned Diotima String Quartet (France) for the Asian premiere of Jonathan Harvey's *Fourth String Quartet with electronics*, alongside their performance of contemporary acoustic compositions for string quartet.

3.2. Collaborations with TIMF

In 2010 CREAMA began a fruitful continuing collaboration with the TIMF (Tongyang International Music Festival) Ensemble, to assist them with the technical side of concerts that involve electronic or computer technology. We initially collaborated with the ensemble on a concert as part of the Dimension Festival at the Nam June Paik Art Center, which led to our first joint concert later that year. This concert, titled *Mix & Match*, included Harvey's *Advaya* and Murail's *Allégories* performed for the first time by local Korean musicians, as well as the première of *Orient* by Korean composer Jiyoun Choi and was enough of a success for performers and audience alike that it prompted the ensemble to subsequently schedule a yearly concert for instruments and electronics in collaboration with CREAMA as part of their musical season. The 2011 concert included the Asian premiere of Philippe Leroux's *M* for 2 pianos, 2 percussionists and electronics, as well as Davidovsky's *Synchronisms No. 3* for cello and electronics, a distinguished and seldom-performed masterpiece from the early years of electronic music. In 2012 we assisted the ensemble with a concert of amplified works by George Crumb in addition to our regular concert, which featured the Asian Premiere of Magnus Lindberg's mammoth *Related Rocks* for 2 pianos, 2 percussionists and electronics, in addition to works by Berio, Reich and others. This yearly collaboration with the TIMF ensemble has been fruitful not only to introduce audiences to some fantastic recent musical repertoire that is seldom performed due to the technical demands, but more importantly has served to start to enlighten the community of classical musicians in Korea (at least those that are already involved with contemporary music) that working with technology can by an exhilarating and rewarding experience.

3.3. KEAMS and the SICMF

Hanyang University has had a long history of collaboration with the Korean Electro-Acoustic Music Society (KEAMS), and their annual Seoul International Computer Music Festival (SICMF) throughout the past decade and a half. Continuing this tradition, we worked worked with the invited invited piano and percussion duo Ancuza Aprodu and Thierry Miroglio for their performances on the final concert of the 2007 SICMF, including works by Saariaho, Teruggi and Chasalow, among others. In 2008 we hosted the UK-based ensemble Shadowplay and worked together with them on an impressive final concert for that years' SICMF, which included the Asian Premiere of Jonathan Harvey's *Advaya* for cello and live electronics, as well as works by Boulez, Reich, and real-time electronic works by young British and Irish composers which the

ensemble had commissioned especially for that concert. In 2009 and 2011 we were able to invite the GRAME studio from Lyon to curate the final concert of the festival, and in exchange we went as representatives of KEAMS to Lyon to present a concert of fixed media works by Korean composers, which we diffused in real-time on a 28-channel speaker setup.

3.4. Collaborations with Nimbleworks

Although we had formerly regularly worked with Sungkyunkwan University and their experimental video group Nimbleworks to provide a live video element for some of our past concerts, in 2012 CREAMA collaborated more closely together with them on an inter-media performance titled *In Defiance*. This inter-media performance involved video, dance, music and interactive computer links between them.

3.5. Student Concerts

Each year our graduate students in computer music composition have organized concerts of their recently-created works. These are now entirely graduate student organized and operated events.

3.6. Other Concert Collaborations

Other musicians with whom we have collaborated throughout the past handful of years (for both acoustic concerts and those involving technology) have been percussionist Jean Geoffroy (France), the New Asia String Quartet (Korea), Quatuor Diotima (Fracne), percussionist Patti Cudd (USA), violist Soomin Lee (Korea), and the Moitié percussion ensemble (Korea). CREAMA has also collaborated and hosted computer music concert exchanges with other institutions such as Keimyung University (Korea) and Tokyo Geidai Asian center for the Arts (Japan).

4. EDUCATION

The computer music degree program at Hanyang University has been recently restructured and expanded from a Masters degree program to a broader program including undergraduate and doctoral students, although this has unfortunately required abandoning our recording arts program. Computer Music at Hanyang is designed to teach computer music from a cultural perspective, and encourage the production of "classical" concert music using technology. Typically, our students are composers with a background in instrumental composition, students with a technical background and strong musical skills, or instrumental performance students with strong technical skills. Additionally, CREAMA organizes seminars, masterclasses and workshops that tie-in to the academic curriculum and offer additional insight into music technology, composition, performance and audiovisual arts.

4.1. The Masters Program

The Masters program has been at the core of our computer music degree programs. The program was initiated in 2004 and consists of 2 years of coursework followed by one or more semesters working on a Masters thesis – usually either a detailed analysis of a computer music composition, or the student's own

work. The courses themselves are designed create a balance between teaching the techniques of electronic and computer music using some well-worn software (such as ProTools and Max/MSP), in addition to exposing our graduate students to a broader spectrum of electronic music ideas (such as algorithmic and computer assisted composition or music perception and cognition) and tools (including but not limited to CSound and IRCAM analysis synthesis software) over a two year period. Some of our courses are requirements which do not change from year to year, while other courses address specific topics in electronic and computer music and are offered to expose students to new and developing trends.

One important aspect of our program that makes it unique in Korea is that we provide a strong historical and analytical context for electronic and computer music via courses in computer music history and analysis that cover electronic and acoustic music repertoire and techniques from the early 20th century to the present [2]. Students seeking a Masters degree in computer music can either apply to the Computer Music Composition degree program, in which case their personal projects at the end of each semester are musical compositions, or the New Media Technology and Performing Art program, which allow students to either focus on the technical/computational side of computer music (DSP and programming), or computer music as it relates to musical performance (either performing an acoustic instrument with electronic extensions, or developing and performing one's own electronic instrument).

4.2. The Doctorate Program

Our Doctoral degree program in computer music was officially opened in 2012, and we have admitted our first two students into the program for the 2013 academic year (which starts in the Spring semester in Korea). The program is project-based with individual study instead of courses, although students have the option to take the Masters courses, as necessary, depending on their existing technical level and/or knowledge of computer music.

4.3. Undergraduate Computer Music

Our studios have always offered a four consecutive semesters of introductory electro-acoustic music courses for undergraduate students (of any major). The first two of these courses are obligatory for all composition students, and the remaining two are electives. As of 2012, composition undergraduates have had the option to focus on computer music composition from their junior year onward. Although this does not change the core coursework they are required to complete, it does allow interested and talented undergraduates to work on compositional projects that include technology as part of the compositional work for their undergraduate degree.

4.4. Composition and Technology Seminars

Throughout the academic year CREAMA and the Hanyang University Composition Department together host seminars and masterclasses presented by distinguished invited guests who work in the fields of

music technology, composition, performance and multimedia. In 2008 we hosted a special seminar-concert with the Diotima String Quartet (France), and again in 2010 with the MD7 Contemporary Music Ensemble (Slovenia). In 2009 we were fortunate enough to be able to invite Tristan Murail (Columbia University, USA) to present a special seminar on his recent compositional activity.

Our other seminar and masterclass guests since 2007 have included: Felix Renggli (Musik-Akademie Basel, Switzerland), Emmanuel Jourdan (IRCAM, France), Jeffrey Treviño (UC San Diego, USA), Gilbert Nouno (IRCAM, France), Peter Furniss (UK), Hubert Ho (UC Berkeley, USA), Seong-Ji Hong (Greece), Tae Hong Park (Tulane University, USA) Chou Wen Chung (USA), Jamie Allen (Newcastle University Culture Lab, UK), David Bithell (University of North Texas, USA) and Sarah Nicolls (Brunel University, UK), Masayuki Akamatsu (IAMAS, Japan), Joel Ryan (STEIM, Netherlands), Aaron Einbond (Columbia University, USA), Mei-Fang Lin (Texas Tech University, USA), Kostas Karathanasis (University of Oklahoma, USA), Haru Ji and Graham Wakefield (University of California, Santa Barbara, USA), Patti Cudd and Pat O'Keefe (University of Wisconsin, River Falls, USA), Jaeho Chang (Korean National University of the Arts, Korea), Charles Nichols (University of Missouri, USA), Benjamin Broening (University of Richmond, USA), Jean Geoffroy (Conservatoire National Supérieur de Musique de Lyon, France), James Giroudon (GRAME, France), Tatsuhiko Nishioka (Tokyo National University of the Arts, Japan), Taehi Kim (Korea), Andrew May (University of North Texas, USA) and Marta Gentilucci (Harvard University, USA).

4.5. Summer Workshops

The annual Summer Workshops organized by CREAMA highlight a different aspect of computer music each year. Often we are able to invite international guests and institutes to teach the workshops. The workshops serve as an introduction to computer music for students interested in learning more about music and technology, and some years they also include advanced workshops designed as continuing education for established computer musicians and educators. Our 2009 Summer Workshops featured Gregory Taylor and Wesley Smith from Cycling '74 (USA), who taught a daytime beginning level Max/MSP/Jitter workshop and an evening advanced level Jitter workshop. In 2011 we were able to invite Jamie Allen from the Newcastle University Culture Lab (UK) to conduct a hands-on workshop on building musical interfaces with Arduino. Furthermore, in 2011 and 2012 our workshops were expanded to include a Tonmeister Workshop taught by Eunjee Jang (Korea) geared toward professionals interested in perfecting their classical music studio recording skills.

5. RESEARCH AND DEVELOPMENT

As an extension of our work with concerts, education and cultural activities, CREAMA also is active in computer music research, although it is still a growing area for our studios activities. The New Media Performance and Technology program and its students together help cultivate small-scale research and development projects which stimulate the overall creative ambience at the studios. Our partnerships with other technology-based arts disciplines and industry also help foster computer music research.

5.1. Concert Technology

Much of our computer music development occurs for the preparation of concerts. A lot of work has gone into updating and recreating outdated technology. We have a long-standing close relationship with the IRCAM production team, and have been given access to concert materials for the performance of IRCAM musical repertoire. In many cases, older pieces use technology that is rapidly becoming obsolete. For these pieces we update the technology (usually Max/MSP software) and provide our updated version to IRCAM's archives for future use. These have included creating our own software emulation of the Akai S-5000 sampler for pieces such as Jonathan Harvey's *Advaya* and Philippe Leroux' *M*. USA).

5.2. Warm Chorus

The "warm chorus" was originally designed for a concert in collaboration with the New Asia String Quartet (Korea), but was subsequently developed into a general-purpose realistic chorus algorithm. The work was presented at the 2012 ICMC [1].

5.3. Collaboration with Industry

CREAMA has recently collaborated with the Acoustics & Vibration Lab at Hanyang University, providing audio expertise on the *Artificial Engine Sound Development Project*, sponsored by LG, relating to the simulation of car motor sounds for electric vehicles.

6. ACKNOWLEDGEMENTS

7. REFERENCES

[1] Dudas, R., "'Warm Chorus': Re-Thinking the Chorus Effect Using an Orchestral Section Model," *Proceedings of the International Computer Music Conference*, Ljubljana, Slovenia, 2012.

[2] Yim, J., Dudas, R., "A Computer Music Curriculum for the 21st Century," *Proceedings of the Seventh International Conference of the Electroacoustic Music Studies Network*, Shanghai, China, 2010.

[3] Yim, J., Dudas, R., "New Music Media at Hanyang University: Studio Report," *Proceedings of the International Computer Music Conference*, Copenhagen, Denmark, 2007.