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The Computer Music Lab at Shenzhen University

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ABSTRACT

We introduce the new computer music lab set up in the College of Arts of Shenzhen University (China). It was started before the arrival of the pandemic and its development was hampered by the sanitary situation which followed. Nevertheless, it became fully operational and this paper describes the various endeavours undertaken since its inception.

INTRODUCTION

In China, like in many other countries, computer music centers revolve around main conservatories. Since the mid 1980s, when electroacoustic music began to be practiced, musicians could find the necessary equipment in those establishments. This is why the blooming of that music took place in conservatories in Wuhan, Beijing, Shanghai...

Today, this situation has not changed much, except for two factors: one, there are additional conservatories, such as Guangzhou's Xinhai conservatory or Hangzhou's Zhejiang Conservatory; And other types of schools have begun to offer computer music facilities to students and professionals alike.

This is what happened at Shenzhen University. Even though this is a large school with multiple science and humanities departments, music has a rather small number of students and a compact faculty. It does not compete with conservatories, as it focuses mostly on musicology and music education, although it offers extensive composition courses as well.

A complete computer music lab was established in 2019 as a place for experimentation, composition and education. In addition, Shenzhen University has a separate unit for popular music education. It is also housed in the College of Arts compound. It has a small but well-equipped recording studio with an adjacent control room. It is entirely devoted to recording students performing, and to the mixing and mastering of the sessions.

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COMPUTER MUSIC AT SHENZHEN UNIVERSITY

Prior to 2019 and the foundation of the computer music lab which we are describing, an educational computer music room was operational. With its multiple stations working solely with MIDI equipment, it could not match the requirements of a complete computer music lab. It is still used today, but solely for general-purpose undergraduate introduction to digital equipment, such as music notation. The computer music lab began in 2019 with a substantial grant provided by the university. Then came the need to find an adequate space, which was provided the same year. Architectural transformation began as soon as the space was made available and completed early the following year. Unfortunately, this coincided with the widespread Covid lockdown, so from then on, the development of the project slowed down. Nevertheless, the studio took shape across 2020. By the end of the year, it was completed.

INTENTION AND REALIZATIONS

1.1 Academic

The lab is able to accommodate a small group of students (up to 15). A Computer Music course takes place there, and several post-graduate seminars are held in the lab, taking advantage of the superb facilities, with an excellent listening system and a large 8k screen monitor.

The undergraduate course on computer music is geared towards composition, so all students have to create a piece of music, using the equipment. In the course, depending on the years, they learn how to use Max, Csound, and the analog synthesizers (and their software equivalents). Rather than creating an abstract composition, they mostly design a soundtrack to a short video, using their compositional skills, creative sound design and finding appropriate sound effects.

In the post-graduate courses, which have different batches of music and dance students, are taught OpenMusic, Max and Csound, in addition to musicology classes. In order to solidify the teaching environment, a textbook has been written. It was published in 2023 by Sun Ya-Tsen University Press (中山大学 Zongshan University), a school located in Guangzhou and a major Chinese education books publisher. A particularity of the book is that it came

out with its text in English and in the same volume its translation in Chinese.

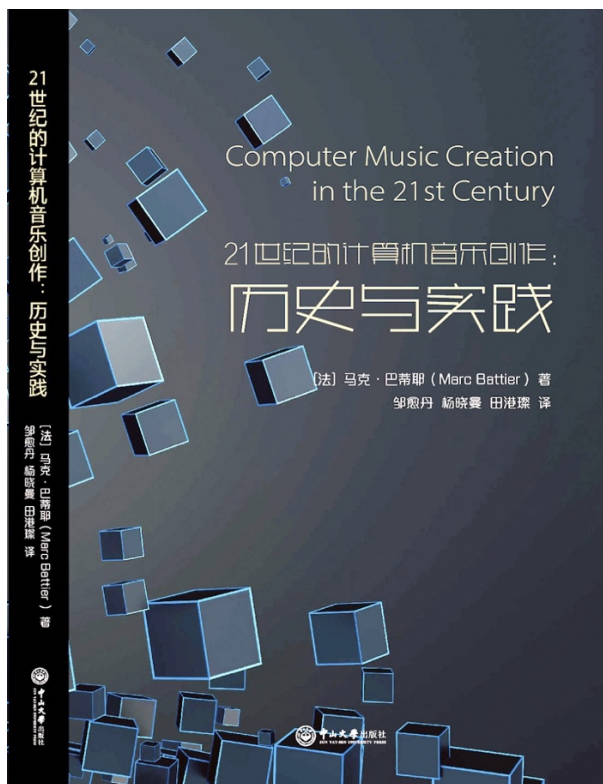


Figure 1. Cover of the book on computer music history and practice, 2023 [6].

1.2 Creative

The lab was established with the ambition of becoming a major creative hub for the university and beyond. However, the Covid crisis changed all that. The campus became locked down. For many months, even faculty had to make appointment to enter the campus, while classes were conducted remotely. During that time, the lab was out of reach. As a result, all invitations were cancelled. This fortunately, did not last too long, and progressively activities resumed. Nerveless, few pieces were realized since the inception of the lab. Here are some of them:

A piece for Chinese flutes and percussion, commissioned by the MUSICACOUSTIC-BEIJING festival, Rustle and Shimmer. It was performed by flutist Li Yue and percussionist Thierry Miroglio.



Figure 2. Rustle and Shimmer, performed in Beijing in October 2019.

Near the end of the Covid crisis was produced a piece for flute and tape made on the request of Italian flutist Gianni Trovalusci, *Nature morte avec sons (Still Life with Sounds)*. It was performed in Rome in July 2022 during a festival organised by the Centro Ricerche Musicali (CRM) of Laura Bianchini and Michelangelo Lupone. It was of course performed by Gianni Trovalusci, and all the sounds were produced with Csound, then mixed and produced in the lab using a large collection of mastering and imaging plugins and standalone software. Another piece was commissioned by the city of Fuzhou, a coastal town in the province of Fujian (also 2022). It was published in Fuzhou in a book with audio. All those compositions were composed by the founder of the lab.

Altogether, it is of course a rather disappointing result, after the efforts of putting together a well-equipped lab, but that was the reality between 2020 and 2022. Notably, students did not have access to the lab during those years, so the creative output expected from the student body was seriously hampered. Most of them were only able to work from home and could not take advantage of the lab facilities.

1.3 Community

One of the intentions of creating a computer music lab was to serve the community. To this effect, a project was undertaken to involve the whole of the music faculty. It consisted in publishing recordings of works on a double CD. The first CD gathered pieces made by the composers on the faculty (six of them). The music ranged from contemporary compositions to jazz. The second one was devoted to highlighting the work of seven faculty performers, plus a piece recorded by advanced students. The album was manufactured by a company in Guangzhou, Pacific Audio and Video.



Figure 3. Double CD produced in the lab in 2022.

In addition, the lab is regularly used by other classes for recordings, under the supervision of the lab staff.

1.4 Research

The principle axis of research implemented in the lab has been around the EMSAN project. Initiated at Sorbonne University but started in Beijing in 2008, EMSAN stands for "Electroacoustic Music Studies Asia Network". Its

purpose has been to develop a number of actions to document the history and growth of electroacoustic music in East Asia since its inception in Japan in the mid 1950s up to today. It gathers scholars and composers who also felt the need to expose the development of this music to an international community.

Thus, EMSAN has fostered different types of activities. Among them, and quite significant, are the EMSAN Day events, which are a one-day symposium. EMSAN Days notably took place in Beijing, in conjunction with the MUSICACOUSTICA-BEIJING festival at the Central Conservatory, during the WOCMAT conferences in Taipei, and in various locations in Japan. Its most recent occurrence was at Shenzhen University in 2021.

Another branch of EMSAN focuses on publications revolving around the practice of electroacoustic music in East Asia. For instance, a detailed analysis of a mixed piece by Beijing composer Zhang Xiaofu was published in 2020 [1]. That same year, the publisher Routledge published *Electroacoustic Music in East Asia*, a book compiled by Marc Battier and Kenneth Fields (the University of the Chinese Academy of Science and UC Santa Barbara) [3]. The originality of that book is that all chapters were written by Asian authors (contrary to the Western habit of writing *about* Asia). Thus, international readers are given the opportunity to grasp musical thought from Asia, mostly in an historical perspective of the development of electroacoustic music.

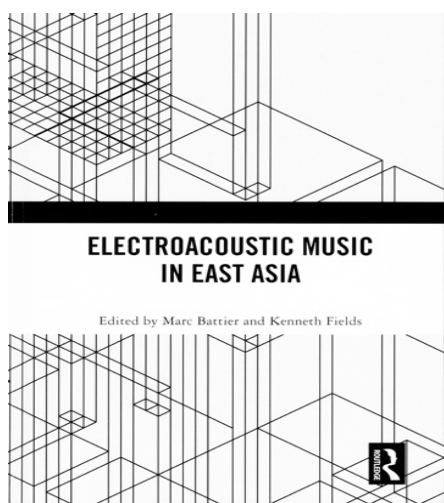


Figure 4. Book published by Routledge in 2020.

More recently, Ken and Marc plus Annie Yen-Ling Liu, a musicologist from Peking University and frequent author of texts on electronic music in China, edited an issue of *Organised Sound*, "Electronic Music in China Today". Contrary to the Routledge book, the issue was conceived to reflect on the recent issues of the development of electronic music in mainland China and Hong Kong. The majority of articles were written by Chinese authors, but there are some by Western authors as well. This is issue 27(3), which came out this year, 2023. Four authors from Shenzhen University were published in that issue: Marc Battier [2], Yang Ting and Zhou Ran [5], and Yang Mengchun [4].

CONTENTS	
Editorial: Chinese Electroacoustic Music Today	273
Marc Battier, Kenneth Fields and Annie Yen-Ling Liu	
Catching Up with the West? Historiographical stances in early accounts of Chinese electronic music	275
Annie Yen-Ling Liu	
Crossing Lines: Stylistic gradients in Chinese electroacoustic music	284
Marc Battier	
Compositional Techniques and Sound Spatialisation in Shanghai-Based Electronic Music since 2000	284
Zhou Ran	
"Mixed Blood" and Aesthetic Evolution in China's Electroacoustic Music Today	307
Anthony Paul De Ritis	
Presentation of Noise Elements of Chinese Plucked String Instruments in Electronic Music	316
Lu Qianbo	
Fusion and Application of Chinese Ethnic Elements in Electroacoustic Music in Mist on a Hill	325
Yang Ting and Zhou Ran	
Liberal Technique in the Real-time Electroacoustic Chinese Art Song "Lang Tao Sha" (浪淘沙)	338
Yang Mengchun and Xu Zhoun	
A Symphony of Sound Images: Spatial composition strategies in Zhang Xiaofu's <i>Yanting Zangbo</i>	346
Wang Xinyu and Hu Ting	
Alternative Approaches to Chinese Imagery: Audiovisual aesthetics in <i>A Reflection in the Brook</i>	358
Zhao Xiaoyu and Sun Zhewen	
Charting the Scene(s) of Sonic Arts in Hong Kong	369
Ryo Ikehara, Damien Charrieras and Permagrius Lindborg	
Electroacoustic Improvisation and Life Nourishment	379
Wang Jing	
The Visual Representation of Timbre	387
Mattias Sævi	
The Prisoner: A missing link in England's history of electronic music	401
Sam Gilles	
Sound and Video Examples - Issue 27 (3)	410

Figure 5. Issue of *Organised Sound* devoted to "Electronic Music in China Today", 2023.

FACILITIES

The lab is housed in a part of the College of Arts building which is devoted to sculpture. In fact, it is a former sculpture studio, which has been completely overhauled. The large windows have been obliterated and covered with absorbent material. The vicinity of devoted and energetic young artists is not a problem, as the lab is quite sound proof. Here is the layout of the lab and its auxiliary spaces.

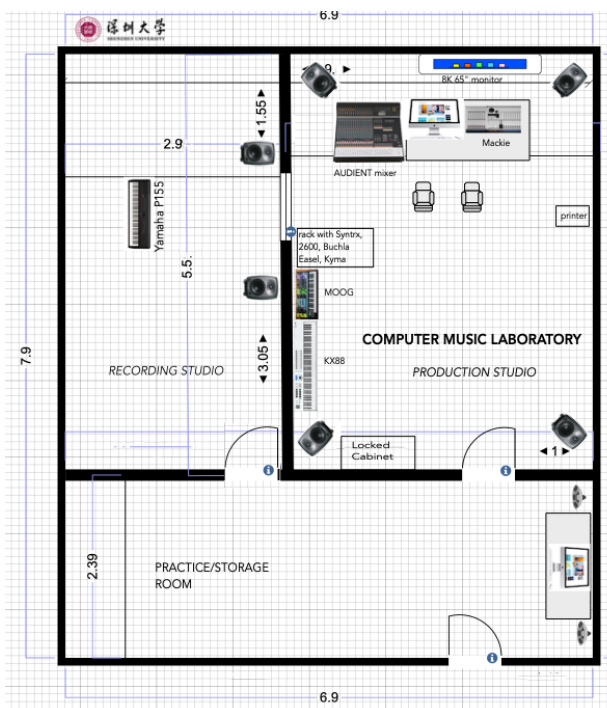


Figure 6. Plan of the Shenzhen University Computer Music Lab.

1.5 The Computer Music Lab

The lab offers a range of audio tools which blends analog equipment and various software as expected in a modern computer music studio. Some synthesizers are hybrid, with digital and analog components, like the Moog Matriarch semi-modular. There are also four analog synthesizers: an Erica Syntrx, based on the old EMS Synthi A, a VCS 300 from the British company Switchtrix, itself also a modern emulation of another EMS instrument, the widely loved VCS-3, a Behringer 2600, a device recreating on a reduced scale the old ARP 2600, and a modern Music Easel by Buchla, which came out in 2023.

A Pacarana system from Symbolic Sound, with its Kyma software, is also available in the lab. All those instruments are feeding an analog mixing board, an Audient ASP 4816 which came from England. The main computer is a Macintosh which is linked to a MOTU 828ES 8-channel audio and MIDI interface.

The MOTU is linked to a MIDI Solutions T8 thru box, capable of receiving up to 8 outputs from devices with MIDI out, such as the analog synthesizers.

The main Macintosh communicates with a Mackie control surface, the MCU Pro with its extender, so that 16 channels are available.

All around the lab are placed four Genelec 8340B monitors, themselves complemented by a Genelec subwoofer.

1.6 The Recording Studio

Next to the lab is a recording studio, with a window between the two spaces and a patch bay rack with 16 in and out XLRs. This is where the microphones are patched and, from there, connected to the Audient mixing board.

For recording, a number of high quality microphones are available, among them, two stereo pairs: a Schoeps MSTC 64-U ORTF Stereo and a Superlux S502 MKII ORTF Stereo; these can be used outdoors for recording with our Sound Devices 6 II digital recorder with 32-bit capability. In addition, there is a couple of Neumann KM 184, a Neumann TLM-103, a Superlux SE2300 multipolar large diaphragm, and a few others. All this equipment was inaugurated for the production of the two CDs mentioned above and is regularly put to use for student recordings.

Auxiliary spaces

The lab and the recording studio are complemented with two extra spaces: a practice room, with its own computer and stereo system, and a storage room for the large number of cables and other miscellaneous equipment.

CONCLUSION

When the construction of the lab was undertaken, no one could envision the problematic years which followed. The expectations to have a studio up and running were to be able to invite musicians from outside the university. It was supposed to become a living place for innovation, artistic creation and enrichment. Unfortunately, the following years saw a partial lockdown which prevented outside artists from using the lab. Now that this episode is finally

behind us, hopes are coming back to put this well-equipped computer music lab and recording studio to full use.

Acknowledgments

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