From Lyon to Yerevan:

Music programming and artistic mobility

With cooperation between the French National Center for Music Creation, Grame, and Armenian Tumo Center for the Creative Technologies, new technologies meet art. Here is how it is going to happen.

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Grame, National Center for Music Creation (Lyon)

Grame is one of six centers of a network of national centers for musical creation, a label created by the French Ministry of Culture in 1997. Organized around an artistic creation hub and a research hub, Grame's main mission focuses on the design and the realization of musical and multimedia projects, in the context of technological innovation and transversality of the arts. All the activities of creation and research are underpinned by several axes: the establishment of collaborative processes and sharing, both in artistic and scientific content, as well as in institutional and cultural partnerships; the permanence of an arts-science synergy, that combines the two hubs for creation and for research of Grame; support for digital writing, including the constitution of creative audio-digital platforms for artists and amateur audiences; the research for a societal dimension of creation through awareness-raising actions and events addressing large audiences, across all generations; the heart of the activity concerns the musical field and in a more extended way, all territories of the sound. However,

music does not escape the deep mutations that agitate all of the artistic expressions. It occupies even a privileged position, being in direct contact with the incessant extensions and outsourcing of humans (connected objects, augmented instruments, virtual memories), as evidenced by the creations for mobile phones. In this sense, Grame strives to be a place of artistic prospective in convergence and with technological innovation.

The current season of concerts and exhibitions, proposed by Grame, is in phase with the new virtual, artistic and educational environment that are developing around sound creation on the web and in the universe of smartphones (Smartmômes, educational work for smartphones, first workshops FaustAudio Playground …). They rely among others on different declinations of the FAUST language.
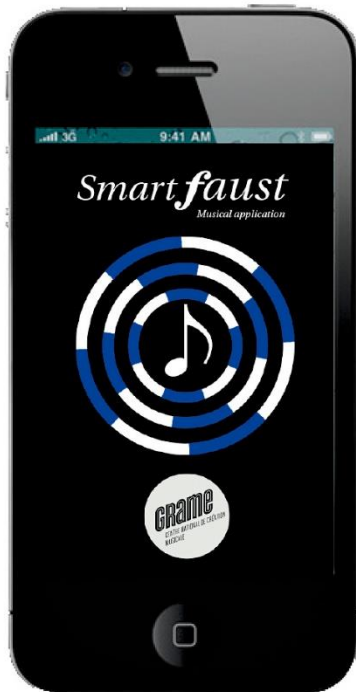
FAUST, a programming language at the service of music

The story begins in 2010. At the time, Grame's scientific department had been working for several years on the FAUST project (Functional AUdio STream), which aims to provide a high-level notation for concisely describing electronic musical instruments, as well as digital tools for implementing them. Instruments written in the FAUST language can work with all kinds of material and not just powerful conventional computers. It is natural that Grame began to take an interest in the possibilities of smartphones. The development for smartphones is quite complex and significantly differs from that of conventional computers. But the devices now have a power of significant calculation and are specially equipped with sensors! Starting from 2010, two axes of work will develop in parallel. On the one hand, the use of smartphones synthesizes sound, and on the other hand the use of the sensors embedded on the smartphone gesturally controls the synthesis made on a conventional computer.

These promising developments around smartphones, resulted in a large participative concert that took place in the framework of the 2014 edition of the Biennale Musiques en Scène organized by Grame. A musical command was given to the composer and improviser Xavier Garcia, who worked closely with Grame's scientific department to develop a series of applications for iOS and Android, named Smartfaust.

The artistic approach is innovative in more than one way, especially since the instruments / applications for smartphones are co-written simultaneously with the pieces they will be used to interpret. Another notable feature of these instruments is the lack of a graphical interface. The musician doesn't need to look at the phone to play it because everything is done between the hand and the ear.

The concert took place in two stages: the performance of three pieces for the "chorus" of smartphones and soloists, then a fourth piece involving the audience. The concert was a great success and had a magnificent impact.

Amplified imagination in classes

The pedagogical interest of this approach was clear for all those involved. The Smartfaust instrument applications opened the way for an essential pedagogical practice, where the important notions are the instrumental gesture, musical play, collective practice, adequacy between a fully adopted technology by young people and its opening to artistic productions. This was all made accessible without going through the process of a discouraging technical

apprenticeship.

In other words, from the start, studying for a musical production is not entirely limited to the mastery of a software or a high-level technological know-how, it is linked immediately to the essentialities: mastery of gesture and body attitude, concentration, listening to one's own production and that of others. In other words, all the components of a musical practice are presented from the beginning. In 2015, Grame organized Smartfaust workshops in several cities of France (Bourg-en-Bresse, St.Etienne, Lyon) in partnership with Momeludies (structure which regularly invites composers to write musical pieces for children).

Faust Audio Playground, a new way of approaching musical programming

Wishing to go even further in its pedagogical approach and to involve young people at all stages of the artistic creation process (from the conception of violin to musical performance), the platform Faust Audio Playground (http://faust.grame.fr/faustplayground) was launched by Grame at the beginning of 2015. Designed for children, it allows for a simplified programming of musical instruments due to a series of high-level components that are assembled graphically. Once the instrument is tested and validated on the platform, it can be "exported" as a native application for Android and installed on the Smartphone by simply flashing a QR code.

The initiation of computer programming through music is a very promising approach and it is in this sense that a collaboration is being established between Grame and Tumo (Center for Creative Technologies) in Yerevan, one of the most interesting places in the field of digital pedagogy.

When Grame met TUMO

During the winter of 2015, Grame discovered Tumo, thanks to the association Muscari and its president Manoug Pamokdjian who worked tirelessly for the valorization of Armenian culture and greater Franco-Armenian exchanges. The facilitator of meetings, Muscari organized the first trip to Yerevan during which Grame was immersed in the universe and teaching philosophy of Tumo and met Marie-Lou Papazian, the director of TUMO in order to identify possible synergies between the two structures.

In September 2016, the first workshop for teachers and pupils of Tumo took place in Yerevan, with the objective of working together with Armenian teaching teams, to create a transdisciplinary teaching methodology using music and FAUST language and the web platform Faust Audio Playground. This very first stage demonstrated that a fruitful collaboration was possible between Grame and TUMO, making it possible to enhance the know-how of the two structures, which could then lead to the creation of an innovative pedagogical approach combining musical creation and programming.

TUMO in Lyon

The experience of the first training course at Tumo revealed the necessity for thorough FAUST language training to be provided to Armenian teaching staff and the need to develop a pedagogical method for their students, crossing the skills of all partners.

Grame and the association Muscari are pleased to welcome an Armenian delegation between the 6th and 10th of March in Lyon, composed of three teachers and three students from Tumo. This second seminar will aim not only to deepen FAUST language proficiency of the teachers, but also and especially the creation of the transdisciplinary "programming-music" pedagogical method for the creation of a musical programming curriculum within TUMO.

The purpose of this approach is to build a relevant pedagogical program based on the learning of the FAUST language and to explore new ways to raise awareness of music via computer science and to introduce computer science via electronic music. The methodology that was designed as a result of the training will be tested and implemented both among TUMO students and Rhone-Alpine schools.

This second working session between the Grame and Tumo teams was possible thanks to the support of the Muscari association as well as that of the French Embassy in Yerevan which awarded two scholarships to two members of the Armenian delegation.

The training that will take place in Lyon during March will not only have the objective of acquiring technological skills but will also award an important place to the discovery of the French cultural and scientific world. The training week will be enriched by travels within the Auvergne-Rhône-Alpes region, which will enable the Tumo team to meet the CIEREC research lecturers (Interdisciplinary Center for Studies and Research on Contemporary Expression) from the University of Saint-Étienne, a class from the Lycée Marie Curie in Échirolles (38) who learn to use the Faust Playground platform , as well as actors of the Francophonie, in connection with Armenia.

March 2017 events

After the rich exchanges and working sessions around musical programming, it's now time for a real performance! Upon the initiative of the City of Lyon and the French Embassy in Yerevan, a concert will be organized at TUMO on March 24th as part of the "Francophonie week in Armenia" and will mark the strong partnership between Grame and Tumo.

On the program, pieces for marimba (J.S. Bach, Bertrand Dubedout) will join pieces for percussion and the chorus of smartphones (Xavier Garcia) which will project the emotion of the music in an unforgettable way to the public! Guided by the director Jean Geoffroy, for the last piece (titled Beelzebub), the listeners equipped with their smartphones will become the "actors" of the musical piece, and will put themselves in the shoes of the orchestral musicians to experience a new perspective of the sound whilst participating in creating new sound material.

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