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A novel approach to music with live electronics

Integra – A European Composition and Performance Environment for Sharing LiveMusic Technologies

by Lamberto Coccioli

A desire to empower composers and performers to work with live electronics technology in a musical and user-friendly way is at the heart of the *Integra* project, an international collaboration of research centres and new music ensembles supported by the European Commission. Thanks to a programme of interrelated activities along the three main axes of research, creation and dissemination, *Integra* seeks to initiate a widespread change of perception towards technology among all the professional actors involved in contemporary music creation and diffusion in Europe.

Integra started taking shape during many long and inspired telephone conversations that I had with Luca Francesconi, the renowned Italian composer and professor of composition at the Malmö Academy of Music, in September 2004. Luca must also be credited for the project name – *Integra* – a simple and powerful way to remind us of our real focus: the integration of artistic and scientific elements in the creation and performance of music with technology. After agreeing on the project structure and strategy, Richard Shrewsbury (formerly project administrator of *Connect*, another large European music project) and myself started to establish a network of partner institutions and we completed the final application in October 2004.

While drafting the project, we set out to find concrete answers to pragmatic issues. Inevitably, we ended up making strong assumptions on the philosophical and aesthetic implications of technology in music. The fundamental issue with technology lies in its unlimited potential and its self-replicating nature:

technology is inherently meaningless. If we are going to use it in music we will have to ask ourselves some hard questions. Why do we need it? How can it be musical? How can it be controlled?

In order to be harnessed, technology should be brought back to a human dimension, and considered just like another musical instrument – a polymorphous one, to be sure, but still an instrument – that we can learn and play. To achieve this, *Integra* aims to simplify live electronics technology, and to establish a standard vocabulary to describe it. The word “standard” is often disliked, but we should not forget that the musical instruments employed in our concerts are themselves “standard”, in fact quite limited ones: nevertheless, they allow the transmission of an extremely complex and diversified musical message.

Integra is not alone in this effort towards more user-friendly technology, although it is only recently that usability, good interface design and a preoccupation for how humans interact with machines have started to appear in technology products. Sadly, as far as the history of music technology is concerned, we are still living in the colonisation phase. I like to compare our current experience with the Wild West: new territories are conquered every day, there are no common laws, survival depends from individual initiative. And we are all still digging in search of that elusive gold mine. This explains the proliferation of do-it-yourself systems over the past three decades, when each work, even by the same composer, required a different technological setup (hardware, software, or both). The often-poor documentation of the electronic



parts and the rapid obsolescence of the original hardware and software have prevented the adoption of a core repertoire of works using live electronics in mainstream concert programmes.

True to its name, *Integra* brings together research centres (the scientific group) and new music ensembles (the artistic group): two often-different worlds, with different agendas and priorities, will share their experience and work together. This is possibly the single most important aspect of *Integra*: all the activities of the project are designed to allow the findings of the scientific group to feed back into the events organised by the artistic group, and vice-versa.

RESEARCH

The research activities will cover two main areas: the modernisation of works that use obsolete technology, and the development of a new software-based environment for the composition and performance of music with live electronics.

These two activities are closely related: during the first year of the project the research centres will transfer the technology of around thirty works, chosen together with the artistic ensembles for their musical and historical relevance. The transferred music will include works by Gérard Grisey, Jonathan Harvey, Tristan Murail and Arne Nordheim among the others. This migration process will mainly consist in adopting standard software-based solutions in order to emulate faithfully the original set up and overcome

the inherent problems of accessing and maintaining old equipment. Most of the migrated works will quickly find a place in the repertoire of the artistic members of the project, and, it is hoped, of many other contemporary music ensembles around the world.

The knowledge and experience acquired in this vast migration exercise will be used as one of the two starting points for the development of the *Integra* environment, the other being the feedback from the ten composers that will receive the *Integra* commissions. By combining the lesson of the tradition with the requirements of contemporary creation, we ensure that the *Integra* environment will be flexible and robust, spanning an ideal bridge between past and present technology.

Usability and sustainability are the key words here. The *Integra* environment will be easy to use, and first and foremost a *musical* tool for composing and performing with electronics; it will also define a new vocabulary to represent electronic events in a standard, software and platform-independent way to ensure their long-term maintenance and survival. More in detail, the environment will be composed of four distinct elements:

1. **Database** – The back-end of the environment, a standard online database to store modules, performance data and documentation, initially for each transferred and commissioned work.
2. **Namespace** – An OSC-compliant (Open Sound Control) *Integra* XML namespace to represent and

share all live electronics data among the various elements of the *Integra* environment.

3. **Interface** – The front-end of the environment, an intelligent graphic user interface designed around the needs of musicians and for maximum ease of use.
4. **Engine** – the actual DSP engine of the environment, an extended collection of analysis, synthesis, processing and control software tools.

The concept underlying our modular approach is the representation of the audio network, the control network and their behaviour over time independently from a specific implementation. In other words, we propose a higher level description of live electronics that can stay the same while technology changes.

CREATION

Ten European composers will receive *Integra* commissions, with each new music ensemble commissioning two composers from other European countries. The recipients of the first five commissions are Malin Bång (Sweden), Natasha Barrett (UK/Norway), Andrea Cera (Italy), Tansy Davies (UK) and Juste Janulyte (Lithuania). These five composers will be writing for small chamber ensemble (from three to five players) and live electronics. The works will be premiered between January and September 2007.

The second set of commissions, for large ensemble and live electronics, will be announced at the end of November 2006. The creations of these works will happen between January and July 2008. Mixed-media interaction will be encouraged, as well as site-specific performance events.

Integra will retain exclusive rights on the performance of the commissioned works for three years after the creation, thus enabling every ensemble to perform all the works commissioned by the other ensembles.

Each composer and the performers involved in the piece will be working with a research centre in producing the electronics. This collaboration, extended over a period of two visits (four for the larger works), will allow the composer to work with the tools being developed for the *Integra* environment. The feedback from the composers will be used to help design tools that are intuitive, powerful, and above all musical.

DISSEMINATION

The success of the *Integra* environment will be measured by its public support and widespread adoption by composers and performers in Europe and around the world. We aim to build a community of musicians and researchers to look after *Integra* once it

arrives the end of its official life in September 2008. To achieve this ambitious goal we are devoting a considerable effort to create a network of institutions and individual contacts. We are also keen to establish links with ongoing projects in related areas (digital content preservation and storage, Human-Computer Interaction, etc.), promoting standards and ensuring interoperability between *Integra* and other related applications.

In rough numbers, during the life of the project we will be delivering: thirty individual training sessions on live electronics technology for the commissioned composers (each lasting three days), and forty individual training sessions for the performers of the new music ensembles (some of these sessions will overlap, to allow composers and performers to work together on the commissioned works); a minimum of fifteen concerts and performance events, featuring the commissioned works and many transferred works from the existing repertoire.

We will run open workshops before the concerts for local musicians and composers and produce an innovative DVD on the project documenting

the *Integra* activities and presenting the *Integra* environment through practical demos. The DVD will be distributed to all new music actors in Europe.

We hope that the *Integra* environment will become a de facto standard for the preservation, composition and performance of music with live electronics. If the project will be successful, the repertoire of European contemporary music ensembles will grow accordingly and performances of music with live electronics will become more frequent, while forgotten works using obsolete technology will become again active agents in our musical life. *Integra* will also contribute to the creation of a new breed of highly mobile professional musicians: empowered by light, accessible and reliable technology, they will be able to travel and perform around Europe with their expanded repertoire, helping to bring down the barriers that still today prevent many musicians from using technology in the first place. ■

Lamberto Caccioli, an Italian composer currently working as Head of Music Technology at UCE Birmingham Conservatoire, is Integra's Project Manager



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FACTS, INTEGRA

Integra – A European Composition and Performance Environment for Sharing Live Music Technologies is a €1,035,048, 3-year cooperation agreement part financed by the European Commission through the 2005 call of the Culture 2000 programme [ref 2005-849]. Started in September 2005, *Integra* is led by UCE Birmingham Conservatoire in the United Kingdom. The project partners are:

New Music Ensembles

Ensemble Ars Nova, Malmö
Athelas Sinfonietta, Copenhagen (co-organiser)
Birmingham Contemporary Music Group, Birmingham
BIT20 Ensemble, Bergen (co-organiser)
Court-circuit, Paris (co-organiser)

Research Centres

CIRMMT, McGill University, Montreal

Krakow Academy of Music, Krakow
La Kitchen, Paris
Lithuanian Academy of Music and Theatre, Vilnius
Malmö Academy of Music, Malmö (co-organiser)
NOTAM, Oslo
SARC, Queen's University, Belfast

Association of European Conservatoires

The composers commissioned so far are:
Malin Bång, Sweden (Athelas Sinfonietta)
Natasha Barrett, Norway (Ensemble Ars Nova)
Andrea Cera, Italy (Court-circuit)
Tansy Davies, United Kingdom (BIT20 Ensemble)
Juste Janulyte, Lithuania (Birmingham Contemporary Music Group)

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