Interactive Computer Music for Double Bass

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Interactive Computer Music for Double Bass

By Jeremy Baguyos

The rise of the academy as patron of art music, the philosophical underpinnings of “futurists” like Russolo and Busoni, the increasing power and cost-effectiveness of computer-based systems and the new compositional directions of the Post World War II avant-garde have all contributed to establishing the genre of electroacoustic music in the United States. Composers have increasingly turned to electronics for new source material and as a result, there is an entirely new repertoire that was generated to take advantage of the emerging technologies and aesthetics. For the double bass, this new repertoire included compositions like Jacob Druckman’s Synapse/Valentine (1969), Charles Whittenberg’s Electronic Study II (1962), and Donald Erb’s Basspiece (1969). In recent decades, composers have added to the repertoire. Many composers should be recognized for their contributions to electroacoustic double bass repertoire, but some merit more than a passing reference. Of particular interest are Death of Desdemona (1987) by Frank Proto, Moby Bass (1975) by David Neubert, Birth of Venus (1990) by Christos Hatzis, Three Pieces for Double Bass and Tape (1990) by Orlando Jacinto Garcia, Radio Sonata (1982) by James Sellars, and Mist (1997) by Robert Gibson. Additionally, a number of double bass soloists have championed the cause by commissioning, promoting and regularly performing electroacoustic music. Two of the most prominent double bassists in this repertoire are Bertram Turetzky and Robert Black.

The compositions mentioned in the preceding paragraph are tape pieces or fixed medium pieces, where the electronic part is realized electronically and stored for future
MAX/MSP is a high-level programming language, but the
programmer/musician does not need to
know the inner workings of machine lan-
guage, assembly languages, or even in-
tuitive text-based languages like C. The pro-
grammer/musician does not need to worry
about a compiler or interpreter, nor does he
need to know the inner workings of the
source code. Instead, the programmer/
musician needs only to know about
MAX/MSP objects and what they can do
for the musician: namely what the machine
accepts as input, what it outputs, and what
is supposed to do. A diagram of the rela-
tionship between MIDI data or audio signal
flow and the other "objects" with which it
connects/interacts is provided.

A MAX/MSP program can be as esoteric
as the most complicated C++ code (a com-
puter programming language), yet it can be
used by the most technophobic of tradition-
al musicians if the MAX/MSP programmer
designs a user-friendly interface. In addi-
tion, the purchase of the full version of
MAX/MSP is not required to run a
MAX/MSP program. The run-time envi-
ronment for any MAX/MSP program can
be downloaded for free from the web site of
Cycling74, the manufacturers of
MAX/MSP. If a musician wants to program
as well as run MAX/MSP applications, a
full version of MAX/MSP can be "audi-
tioned" for 30 days by downloading it from
the Cycling74 site. After 30 days, the soft-
ware requires a password challenge that
only a full-paying license owner will have.
The MAX/MSP programming environment
currently only runs on the MAC OS 9 and
MAC OS X operating systems, but a com-
mercial version for Windows is being
developed and its release is anticipated.

Over the last few years, I have been inti-
mately involved with the creation and per-
fomance of MAX/MSP patches for interac-
tive computer music for double bass. Some
current and past projects include the imple-
mentation and realization of Andrew May's
Ripped-up Maps (1997/2003) for Solo
Instrument and Computer, Robert
Hamilton's Museau de Singe (2003) for dou-
bble bass, piano, and interactive computer
electronics, and Conversations on the Nature
of Life (2003) which was composed by an
intermedia collective consisting of Robert
Hamilton (composer), Jeremy Baguays
(bassist), Leo Duborobsky (biophysicist),
and Levon Lewis (spoken-word artist).

May's Ripped-up Maps for Solo
Instrument and Computer was originally
written in 1997 as an improvisation envi-
For this piece, there is no traditional musical score. Instead the score reads something like an application software manual. It provides details for the hardware and system software requirements to run the improvisation environment, instructions for the engineer and instructions for the musician. And the piece itself is a vehicle for improvisation. Ripped-up Maps captures the player’s improvisations and stores them in memory buffers. As the player continues to improvise, the computer begins an algorithmic playback of complex, digitally processed samples of the player’s improvisations. The computer responds to what the player is currently playing, putting out sound according to composer/programmer-defined algorithms.

The human laptop player can control every aspect of the real-time processing including panning, amplitude, sample playback, types of processing, timbre, and pitch. The complete version of Hamilton’s Museau de Singe was premiered at the Peabody Conservatory of Johns Hopkins University on May 6, 2003.

Conversations on the Nature of Life is an intermedia work created through a collaboration between Rob Hamilton (composer/programmer), Jeremy Bagayos (bassist/programmer), Leo Dubrovsky (biophysicist/programmer), and Levon Lewis (spoken-word artist/visual artist/poet). In this work, otherwise disparate forms of human creativity intersect and unify through the MAX/MSP/Jitter programming environment. Jitter is an extension to MAX/MSP that allows for the real-time musical control of video images.

Conversations on the Nature of Life was realized at the Digital
Media Center of the Mattin Center of Johns Hopkins University and was premiered on May 9, 2003 at the Swirnow Theatre in Baltimore, MD.

The long-term implication of MAX/MSP might be considered to be "artificial intelligence" in musical performance. When a musician/programmer composes/programs a MAX/MSP patch, that musician/programmer is creating a crude but artificially intelligent musical partner that can react to a human musician. As software and hardware continue to develop at breakneck speeds, MAX/MSP patches are evolving into chamber music partners. It might seem like a far-fetched notion that technogeeks would talk about at science fiction conventions, but the electroacoustic music tradition is moving towards ushering in an artificially intelligent computer musician that will play along side its human counterparts in the not-too-distant future.

After holding full-time posts as Principal Bassist with the Orquesta Filarmónica de GC (Spain) and as second-chair bassist with the Shreveport Symphony, Jeremy Baguyos maintains a full schedule as a freelance double bassist in the Washington, DC area, and also subs with the Milwaukee Symphony. He has performed with the Kennedy Center Opera House Orchestra and the National Symphony in addition to his electroacoustic pursuits with the 21st Century Ensemble and the Modulus Ensemble. He was on the regular faculty of Grambling State University and Indiana-Purdue University at Ft. Wayne. Baguyos received his Bachelor of Music from the Indiana University School of Music where he studied double bass with Bruce Bransby and attended the Peabody Institute of Johns Hopkins University where he studied computer music. His hobbies include dachshunds, running, and readings in the humanities.

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