media production system
the audio production tool

▸ **Interview with Robert Jay-Ellis Geiger**

Robert Jay-Ellis Geiger demonstrated a 5.1 surround production using Nuendo and Cubase VST at the 19th AES (Audio Engineering Society) International Conference at Schloss Elmau, Germany.
Mr.Geiger is a senior lecturer at Leeds Metropolitan University in the areas of Music And Sound for Moving Image; Audio Recording; Music and Sound Synthesis; Music and Audio Technology; Digital Video; Internet Development and Interactive Media Design.
He is also coordinator for Steinberg training at Leeds Metropolitan University and Singapore Polytechnic, besides being an active performer (pianist/vocalist).

Dimitri Metzeltin: How did you get into the music business, what were you doing before becoming a lecturer at Leeds Metropolitan University?

Robert Geiger: Where to start? Well, I need to give you a little history. My German grandfather introduced me to Irish jigs and reels on his piano accordion and my English grandfather (Irish descent) being a conductor and bandmaster started my music lessons on trumpet and cornet at the age of six. Shortly after I was off to the Catholic primary school where I learnt piano from Sister Marietta in a little Queensland town called Biloela within Australia. I eventually went on to graduate from the Queensland Conservatorium of Music and ventured around Australia and Europe as a popular music performer (pianist/vocalist). From the age of 18 my professional performing career as a pianist/vocalist actually started after deferring my engineering studies. When I say 'professional' I mean that I made my living solely from performing and paid my own way throughout all of my academic/university studies. I was also a session musician, audio recording engineer, music producer and owner/designer of my own audio recording studio from 1990-1995.

As far as being a lecturer, I started at Leeds Metropolitan University on the 1st October 1999, previous to that I was lecturing at Singapore Polytechnic from February 1997 until moving to Leeds. Before Singapore, I was a part time lecturer at Griffith University Queensland and the Australian Institute of Music in Sydney from 1995 until 1997. If anyone is bored or has time to kill my life history is up on: www.MusicSound.net

Dimitri: When and how did you hear for the first time of Nuendo?

Robert: In 1998 I was in San Francisco attending the Audio Engineering Society's International Convention, there I was introduced to Wolfgang Kundrus (one of the Nuendo software developers) by Per Larsen (C.F.O. Steinberg Media Technologies AG). Wolfgang enlightened me to the facilities Nuendo contained, running at that time on a Silicon Graphics computer. It was from then that I realized the wide potential for Nuendo both within and outside of education.

Dimitri: What other programs have you been using before?

Robert: Do you really want me to mention the competition? Ha ha… here is the Steinberg and the 'others' list:

- **Steinberg:**
    - Cubase VST/32
    - Nuendo
    - WaveLab
    - Mastering Edition
- **Other audio/MIDI software:**
    - ReCycle
    - ReBirth
    - Reason
    - ProTools
    - Logic Audio
    - Cool Edit Pro
    - CakeWalk (reluctantly)
- **Macromedia:**
    - Director
    - DreamWeaver
- **Adobe:**
    - Premiere
    - Photoshop
    - PageMill
- **Sonic Creator**
  (Interactive DVD Authoring)

Dimitri: Which were the main reasons for choosing Nuendo for you and also for the University?

Robert: Because our school offers three BSc (Hons) and an MSc award in the areas of Multimedia Technology; Music and Sound Technology; Film Technology we needed specialist music and sound software to complement these awards and that met the following requirements:

1   Advanced post-production digital audio editing and recording software

1. Advanced post-production digital audio editing and recording software comparable to ProTools.

2. Cost effective and flexible allowing us to outfit an entire 'lab' as apposed to one or two ProTools workstations. We have Nuendo running in an area that we like to call our composition studio that contains ten workstations installed with inexpensive sound cards (16bit) and software that allows 24bit files to be played back on 16bit sound cards. Within this studio, students are able to work on audio recording projects as well as composition projects before going into the audio recording studios where we also have Nuendo installed for the final stages of mixing and mastering. Nuendo is also used in the studios to record additional audio material for MIDI composition projects or just pure hard disk audio recording.

3. Able to import digital video files and have an overview of the video similar to that of a digital video editing package, and be able to juxtapose video with audio and MIDI parts sharing a common time line within an arrange window.

4. Able to import and export the Open Media Framework Interchange OMFI files, (extension .omf) allowing a user to work on ProTools and AVID sessions and the TL (Tascam) format, both formats extending the application of Nuendo to collaborative AV projects with other facilities and or institutions.

5. Import Adobe Premiere EDL files.

6. Replace the audio within a video file.

7. Able to import Cubase song files

Dimitri: As a lecturer at Leeds Metropolitan University, what do you consider the strengths of Nuendo?

Robert: A lot of the strengths I have outlined above. One of the distinct advantages with such a powerful software package not requiring dedicated hardware is that ones system can grow and performance and speed improve with the increased performance of ones own computer platform. This is the distinct difference between a ProTools and a Nuendo system. After all multiple processor desktop computers are just around the corner and I am sure that Motorola make more money out of developing chips for the mobile communications market than producing chips for Digidesign (AVID). With most education institutions there is a continuous upgrade plan of computer hardware every two to three years thus allowing the performance of processor demanding software to improve with a minimum cost in software upgrades. If one requires an ultra-powerful workstation containing multiple processors for running Nuendo or VST applications, then all you have to do is add a PCI card such as the new TC Works PCI card called Powercore. Adding such a card as Powercore can add a new lease of life to older computers and make others potentially outperform a ProTools rig. Another reason is that Nuendo runs on both Windows and Macintosh platforms, which is an important factor for education institutions.

Dimitri: Do you think that the intuitive approach of the program helps in the educational environment?

Robert: Yes - Nuendo is very easy to use; I have observed my students within their first semester of year one working on projects with Nuendo, they just jump right in there without any introduction. By its very instinctive design both in terms of interface and functionality, implementing certain features that have been established as generic ways of dealing with digital audio editing, Nuendo allows an educator to focus on course content and not on just instructing students on how to use software packages. After all we are a university and not a technical college and need to address the higher application of knowledge especially in the latter years of an Honours degree course.

Dimitri: You presented a project at the Audio Engineering Society's 19th International Conference that was created with Cubase VST and Nuendo. Please describe the setup for the production, the musical material, the computer and the hardware you have used.

Robert: What I presented in Germany was an interactive DVD containing two surround sound projects comprising in total of six Dolby Digital .ac3 files. The 1st project was my composition titled 'The Aftermath' and the 2nd project was a location audio recording of a traditional Scottish song titled 'The Over Gate' by George Duff, a traditional Scottish singer/guitarist. Bhupinder Chaggar overdubbed Indian percussion later in our audio recording studio. The reason for six Dolby Digital .ac3 files is because I made both 'wet' and 'dry' mixes for both projects and with the Scottish artist I made two different surround mixes to illustrate the shift in perception when his voiced was place and projected differently within a surround sound 5.1 field.

Hardware:
Pentium III 450 with 256RAM, Ultra-2 SCSI hard disk, installed with MOTU PCI 324 card connected to a MOTU 2408 II interface.
Roland JV-1080 installed with both orchestral boards as well as the Asia and World boards.
Korg D16 Hard Disk recorder used to record the Scottish artist on local

Korg D16 Hard Disk recorder used to record the Scottish artist on local.
Laptop Dell Inspiron 7500 used for MIDI sequencing and pre-production.
Macintosh G4 (DVD Authoring workstation)

Software:
Nuendo, Cubase VST/32, WaveLab, Digigram's Multichannel Dolby Digital Encoder
Sonic Creator (Interactive DVD Authoring system)
Adobe Photoshop

Musical material:

1st Project: The Aftermath
The title, idea and inspiration for the work itself initially came from a painting by
Brian Wood titled "Culloden -The Aftermath" and, of course, the historical events
that immediately followed the Battle of Culloden. I initially used paper and pencil
to write down the melody that came to me one night walking back up the Royal
Mile in Edinburgh (Scotland) after a traditional Border singing workshop. Mind
you, I had quite a few drinks that night. In regard to the rest of the piece, it can
be said that I was very much moved emotionally and musically after immersing
myself in the traditional Folk world whilst living in Edinburgh, performing
whenever I could in sessions (most of the time for free) with some of the worlds
top Celtic/folk musicians.

2nd Project: The Over Gate (Traditional)
A Celtic/Folk performance recorded on location in his lounge room using a Korg
D-16 portable 24bit hard disk multi-track recorder. A very basic set up was used,
a single cardioid microphone (AKG C1000) on the guitar and one on the voice.
Afterwards, all tracks were transferred to our audio recording studio's computer
where Indian percussion was overdubbed.

Dimitri: Where would you say that Cubase VST helped producing the songs and
where did Nuendo help?

Robert: In reference to the 1st project 'The Aftermath' I took my manuscript
sketches and played them 'live' with no quantization into Cubase VST/32 from a
MIDI keyboard. I prefer to enter music parts (MIDI data) this way giving a
musical feel to each part. Most of the time, the way I tend to work is to initially
set up Cubase like I would my manuscript paper with all of the instruments laid
down in the correct order and instrumental patches selected and assigned to each
track and/or part. I then simultaneously read the score from Cubase and record
new MIDI parts live, allowing me to sort of read the score and improvise new
material. I then print out the score and study it further which leads to all sorts of
possibilities and outcomes. In a nutshell, this is how I work on traditional
composition projects.

Cubase VST to convert MIDI parts to audio tracks:

Once the composition was compiled into Cubase VST/32, the audio output of the
MIDI sound module (JV-1080) with all of the internal effects turned off was
recorded into Cubase, painstakingly converting each MIDI instrumental part into
at least two mono audio tracks for added realism. It is important to note that the
JV-1080 was not put into multi-timbre mode, but patch mode. The result was that
the MIDI strings occupied 8+6+4+2 = 20 audio tracks within Cubase and a
similar process was used for the French horns and eventually 32 audio tracks were
created as a result. For the MIDI string parts each instrument (patch) was
recorded into Cubase a number of times to simulate the subtleties of a complete
section. For example, to record a 1st violin section, a solo violin patch was
selected within the sound module and the audio output (mono) from the sound
module was recorded eight times into Cubase with slight variations in the sound
modules parameters such as pitch and some other 'secrets'. You only need to
think of how the sound differs between a 1st violin section playing a single
melodic line compared to a solo 1st violin playing the same melodic line.

Nuendo to create a 'Cinematic Experience':

The Cubase song was then imported into Nuendo to take full advantage of the
advanced audio editing, automation and surround sound mixing facilities. After
using Cubase to convert the MIDI parts to mono audio tracks for the woodwind,
string, brass and Celtic instruments, I then mixed and automated all of the 32
mono audio tracks and eventually placed each individual track/instrument within a
5.1 surround sound field. Each orchestral section was placed in a location within a
5.1 surround sound field to give what I like to call a 'Cinematic Experience'.

In reference to the 2nd project 'The Over Gate' I did not use Cubase, I used
Nuendo to transfer the audio tracks from the Korg D16, record new material and
to produce the final surround sound mix.

Dimitri: You have used Nuendo for your surround mix. Could you describe for us
how you achieved your final mix in Nuendo?

Robert: For both projects I used Nuendo to create the final stereo and surround
mixes. I like to balance the levels of instruments within sections and mix all of the
material in mono projected from the front center speaker. This way I am able to
listen and blend tonal colors more effectively by monitoring from a single point
source as opposed to monitoring from two or more speakers making sure my head
is positioned in the sweet spot. For each project, when I was satisfied with the
tonal qualities as a whole, I then placed instruments within a surround field
location and adjusted levels accordingly. In a way I was mastering my audio

location and adjusted levels accordingly. In a way I was mastering my audio material before placing it within a surround location. This is the way that I prefer to work.

Nuendo presents a distinct advantage versus a digital surround mixing console in being able to create various Surround Pan window sets assigned to key commands. I was able to call up all of the Surround Pan windows for eight tracks at the push of a key. This allowed me to quickly adjust the position of various tracks and observe the position of sections that had been grouped together and assigned to a named window set (Fig. 1).

Fig. 1: Four of the eight Surround Pan windows for 1st Violins.

Once I had created the six surround channels by exporting them out of Nuendo, I was then faced with the dilemma that Digigram's Dolby Digital encoding software was only able to process 16bit files and not 24bit files which I had produced. I then had to batch process using WaveLab and the Apogee dithering algorithm to smooth the truncation process from 24bit to 16bit resolution, which really worked well. The Dolby Digital files were then imported into Sonic's DVD Authoring package 'Creator' which I then used to produce the complete DVD.

Dimitri: Which features in Nuendo did you use a lot, which ones did you like?

Robert: The automation is fantastic! Being able to create extra tracks dedicated just to automation. The other great feature is window sets assignable to key commands which works simply great. For 'The Aftermath' the only effect I used was TC Works 'SurroundVerb', which was inserted within the master plug-in section. For 'The Over Gate' I used the surround reverberation from within Surround Edition and again inserted the effect within the master plug-in section.

Dimitri: What are the next projects we can expect from you?

Robert: I have just arrived back from Ireland where 'Heart Quest', a Celtic Opera that I composed the music for was performed at the West Belfast festival on 6th, 7th and 8th of August 2001. All performances were sold out and The Andersonstown News called it "The Musical Master Piece". I am also off to Hong Kong on August 20th 2001 as a consultant to Hong Kong Polytechnic to advise on the design of a Games, Animation, Sound and Music Academy. And I will be presenting a paper on 'Music and Sound Production within a PC' at the forthcoming Audio Engineering Society's 111th Convention in New York during September 21-24, 2001.

Dimitri: Do you have any tips on mixing surround sound for our readers?

Robert:

1. Master all of your audio material as best you can before mixing it in surround; I don't believe that the role of current audio mastering engineers can be applied to finalized surround sound mixes.

2. If projecting an instrument solely from one of the surround sound speakers, then do not project the early reflections or reverberation generated from that instrument through the same speaker.