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MA Composition for Film, Theatre and Performing Arts
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WORKS:

- Edge
- El Empleo
- Woyzeck
- Duet
- Fantasmagorie

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EDGE

a film by Gary Salomon



Overview

Edge is a short film I conceived, filmed, edited and produced, along with composing the score and recording and producing the soundtrack. The film was screened with the score performed live at Theocharakis Foundation for the Fine Arts and Music Concert Hall in Syntagma, Athens, on 23rd February, 2018, where I recorded the musicians performing the score to produce the final soundtrack.

Concept

The work takes inspiration from Sylvia Plath's final poem, *Edge*, composed just days before her death by suicide:

> *The woman is perfected.*
> *Her dead*
>
> *Body wears the smile of accomplishment,*
> *The illusion of a Greek necessity*
>
> *Flows in the scrolls of her toga,*
> *Her bare*
>
> *Feet seem to be saying:*
> *We have come so far, it is over.*
>
> *Each dead child coiled, a white serpent,*
> *One at each little*
>
> *Pitcher of milk, now empty.*
> *She has folded*
>
> *Them back into her body as petals*
> *Of a rose close when the garden*
>
> *Stiffens and odours bleed*
> *From the sweet, deep throats of the night flower.*
>
> *The moon has nothing to be sad about,*
> *Staring from her hood of bone.*
>
> *She is used to this sort of thing.*
> *Her blacks crackle and drag.*
>
> *5th February, 1963*

There are many themes prevalent in the poem — death, flowers, the colour of white, references to ancient mythology — but it seemed to me too obvious and unoriginal to make a short film that clearly depicts a dead woman and include imagery clearly based on these themes. Before creating any of the video images or musical composition, my structural concept was to take the subject matter of the text as a metaphor for social decay and depict this through a set of images that would contain no plot or characters, set to a soundtrack that combines a score for acoustic instruments combined with an electronically processed recording of the poem.

Developing the concept, I decided that the images in the film were to reference social decay and bring to life the poem in a less obvious way; I would choose images that depict social decay both current and historical. Against this I wanted the soundtrack to form an alternative iteration of the same metaphor, and as such I conceived the concept for the process through which to create the soundtrack as such: I would record myself reciting the poem, stretch it to the target length of the film (6-7 minutes), transcribe the resulting shape of the 'melody' created by the stretched recording of the poem for an instrumental ensemble; against this, I would record a second recitation of the poem by a collaborator, Alkistis Polychroni, and again stretch it to the target length of the film (6-7 minutes), to run alongside in dialogue with the musical composition.

Imagining the result of this piece in advance of its execution, I was considering as a reference the collaborations of John Cage and Merce Cunnginham for music and choreography in which the two art forms exist at the same time in one piece, without seeking out sync points where the musical composition responds to the images in a 'commercial' way; any sync points that might occur in my film would be embraced, but the idea was to complete the film and the musical composition and combine these two without concerning myself with these additional commercial factors. I was more concerned with the process I would go through to create the video and the different process that would create the soundtrack, and was interested in how I imagined the two might end up combining, rather than watching them combine during the creative process, and changing decisions in the music or images based on the results of the work in progress.

I intended for the film to have no plot or characters and for the chosen images to be the protagonists of the narrative. For inspiration regarding this technique I watched Godfrey Reggio's 1982 film *Koyaanisqatsi* which consists primarily of slow motion and time-lapse footage of cities and natural landscapes. I did not intend to use time-lapse or slow motion techniques, but took inspiration from the way the tone of the piece is set by the juxtaposition of images and music.

I shot and edited the film before recording and producing the soundtrack so I will discuss in detail first the concept and creative process behind the video and then that of the composition and soundtrack.

Video Concept

Developing the overall concept through the start of winter 2017-18, I was considering what locations I could use to present images of social decay, both current and historical. I decided that the human element of the poem is strong enough without needing to show humans to represent decay in society, and instead to focus on buildings in a state of disrepair. As I am British, but living and studying in Athens, I thought that for this project it would be interesting to film some locations back home in the U.K., particularly as I had already planned a Christmas visit to my hometown, Gloucester.

Gloucester has a rich industrial heritage, with a shipping canal and a series of warehouses in the docks of the city centre offering fruitful employment to the population during the country's industrial boom. Of course, this industrial age did not remain fruitful forever and now many of the wonderful warehouse buildings lie in a state of disrepair. The concept, therefore, was to explore some of these abandoned buildings and film them in a way that shows both the beauty of the original architecture and the current state of the buildings — many have boarded windows and plants growing out of their very walls. I aimed to find abandoned warehouse buildings and film them with a static camera such that the only movement in the shot comes from natural events such as plants moving in the wind, water dripping or birds flying by.

In order to further develop the concept of the metaphor, I decided I should juxtapose the images of the abandoned warehouses that represent the industrial past and the decay of that age of society with contemporary urban settings in the same city. The urban shots would form a subtle commentary on society today by their placement alongside the derelict warehouses, without the need for any human intervention or any textual comment. I knew of some locations around the centre of Gloucester that I personally consider rather bleak and miserable that could offer this contrast so sought to film these, again with little movement to fit with the style of the planned warehouse shots. The sum and total of this concept, before any recreational visits to plan exact shooting locations, seemed to me to capture the essence of the metaphor of the poem. I intended to edit with several seconds of each shot such that the viewer has time to take in the full detail of each image before the film moves on, and also to keep the relative pace of the overall piece slow.

I intended to shoot the whole film on my mobile phone. The technology in mobile phones these days is incredible, and my iPhone 7 shoots video at full HD, 1920x1080, and also up to 4K video (I chose to shoot at 1080 to economise on internal storage space in the device, rather than at 4K and risk running out of storage before completing the desired shots). Of course if I owned a professional level high definition video camera I would have preferred to use it, but I decided the phone was sufficient for this project; I intended to film outside and assuming the light was good, the lens on this particular phone is remarkably good.

Video Shooting

In December 2017 I returned to Gloucester and drove around in the hope of finding the perfect locations for shooting some abandoned warehouse images. Though the rich industrial history of Gloucester means there is a plethora of disused warehouse spaces around the city, health and safety regulations mean the majority of the options for filming were fenced off and protected by security. Being the Christmas holidays, there was little opportunity for me to contact the responsible companies in the hope of accessing these sites.

Luckily, I stumbled across a public road that still in use that runs between two disused warehouses; all the other sides of the buildings in question are fenced off, but the sides that immediately face the public road are all visible and accessible. On top of it being accessible, the location seemed perfect because the two long building fronts that were in view also had a range of different brick walls and different windows meaning I believed with clever filming and editing I could make it look like I had accessed more than simply one side each of two buildings. The location was therefore chosen as the *G. and W. E. Downing Maltsers Offices*, built in 1901 and situated on Merchants Road in the centre of Gloucester. In the final edit, the opening shot at 00:00:02 places us in Merchants Road with the street sign visible, and at 00:02:29 we see the door stating the company name and their occupation (maltsers — those who produce malt), and also a sign informing us that at some point in the more recent past the building was adopted as the Gloucester Regional Centre of West Midland Farmers.





For the contemporary urban settings, I walked around the centre of Gloucester to visit some places I had in mind and found four locations that fitted the atmosphere I wanted to create in the film, all near the central Kings Square: a gambling shop called ‘Raffles Amusements’ on St Aldate St, an unused children’s carousel ride on Kings Square, two public houses also on Kings Square (‘The Regal’ and ‘The Chambers’), and the ‘Golden Dragon’ restaurant on Northgate St.









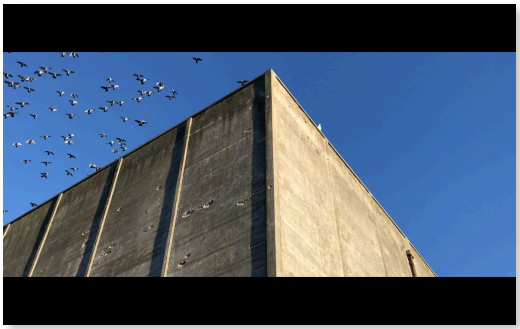
I filmed the warehouse scenes on 28th December 2017 in the mid-afternoon. Unusually for that time of year in Gloucester, it was a clear winter’s day with blue skies and strong winter sunshine, perfect for filming externally. The sun sets very early in midwinter, around 16:00, meaning that to capture perfect natural light for filming, I was filming on location at around 14:00-15:00. It had been snowing the previous days and was terribly cold — around freezing — and I was operating the camera on my iPhone 7 with bare hands which was extremely challenging, both physically and mentally. (It is said that one must suffer for one’s art.) Aside from these practical issues, the light and weather were absolutely perfect for what I had in mind – the blue sky works so beautifully with the warehouse buildings, and the sun was causing the snow to melt, creating the dripping water we see in the shots at 00:00:02, 00:00:21, 00:02:18, 00:02:29 and 00:04:26; the dripping water fitted perfectly with my initial video concept that the images would be taken with a still camera and the only movement in the shot would come from natural events. It is also fitting to see the remains of the snow just before it melts entirely in the shots at 00:01:11, 00:01:31 and 00:01:40. I was also extremely pleased with the birds flying by that become a feature of the later sections of the film, offering elegant and gracious movement against the imposing backdrop of the large buildings.







Seeing the material offered by the warehouses, the snow, the sky and the birds, I decided a visual narrative to the metaphor could develop through beginning with close-up images of sections of the buildings, gradually moving further away, gradually introducing the sky, then concluding with simply the sky. Knowing I aimed to edit with several seconds of each shot, I shot between 30 seconds and 1 minute of footage per capture to ensure I had sufficient material for the editing stage. I did not have a storyboard from which to draw the shots, so began to consider angles that were of interest to me as visual compositions in the space. I moved between straight on and diagonally angled perspectives, thinking these would offer interesting contrasts at the editing stage, and tried at all times to keep the camera as still as possible, though only having available a tabletop tripod that I had to hold in my freezing hands.

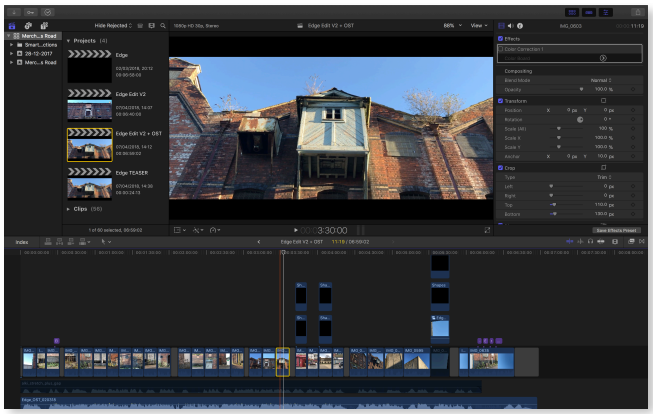


The shot I am most pleased with is of the diagonal top corner of one the buildings past which the birds fly that occurs at 00:05:10. I had already finished filming this corner of the building when I noticed the flock of birds approaching; I rapidly recomposed the shot to capture their amazing movement and the fantastic shadows it creates in the light of the afternoon winter sun.

I filmed the urban localities on 4th January 2018, spending nearly an hour to shoot the footage in order to gather the required material for what in the final edit amounts to around 40 seconds of images. As described, I did not want humans to be the focus of these shots, simply for the shots as they are presented to speak for themselves about the nature of society and the human condition. Being as they are images in the centre of a city taken in the daytime, it was a challenge to capture a long enough sections of the chosen subjects without a person walking into shot. The two images from Kings Square

of the carousel and the public houses do have people in the far distance, however they are not the main focus of attention when one views these scenes. I am pleased with how the chosen images convey the bleak nature of the metaphor I was exploring, but purposefully doing so without directly referencing any people whose lives involve passing through these localities.

Video Editing



I edited the film using *Final Cut Pro X* (FCPX). I previously had a small amount of experience of working with the programme but had never edited a full piece and was happy with the challenge and sense of achievement that the process and end result offered. This is a skill I was happy to develop and would like to continue to work with in the future.

I imported all the footage into the library and created a project for an initial edit of *Edge*. Based on the narrative I had devised for the development of the images, I composed the form of the film to be as follows:

- Open with close-up shots of features of the abandoned industrial buildings, gradually introducing middle distance shots
- Move to shots of the upper sections of the warehouse buildings including blue sky
- Cut to shots of the urban spaces
- Return to shots of the upper parts of the warehouse buildings with blue sky
- End with shots of just the blue sky and birds for the end credits

I dragged clips in to the timeline that would generally follow this order and started to shorten all clips to around 10 seconds. I noticed that having not filmed with a proper tripod, I needed to find the steadiest section of each clip; generally the beginning had shaking due to me finding the correct focus and a comfortable hand and arm position from which to film. Fortunately, *FCPX* has a ‘stabilization’ video effect setting that I was able to apply to the clips, including within this a ‘tripod mode’ setting. This feature analyses the colour distribution in the given clip and crops the overall image slightly in

order to keep areas of the same colours in the same place on the screen to give the impression that the clip was filmed with a tripod.

To begin the film and lead up to the opening title screen, I decided to set the scene with the first clip showing the street sign of ‘Merchants Road’, secondly one of the close-ups of broken windows and graffiti, followed by the shot that includes litter left on the floor alongside the building; the litter reminds us that people today still pass by this building and interact with it, albeit in a way that is damaging for society. Above this image of the littered floor it seemed fitting to place the title screen, which I created by writing the word *EDGE* (all in capitals) in the ‘Bodoni 72’ font at the largest font size available, used the transform option to scale the text box up to 253% which made it fill the whole screen, then used the ‘Stencil Alpha’ blend mode in the compositing menu that makes the screen appear black, but with the previous video clip visible through the letters of the title, linking the title inherently to the material.



Moving through the opening section of the film, I made use a clip that shows the boarded up doors and windows of one section of the warehouse with a contemporary ‘Fire assembly point’ emergency sign and two fallen road cones. This composition was interesting to me to further reinforce the dialogue between contemporary society and the past industrial age; this building still stands and life continues around it. During the filming of this shot, which in total is about 00:01:30, a delivery lorry drove past in front of the camera. Though I had enough material to use a 10 second section that simply shows the building, I decided to embrace the lorry passing, making it a feature of the shot, again reinforcing the link between contemporary society and this historic building; this remains a public road and people pass here every day for business or leisure, most likely not taking any notice of this abandoned warehouse and with no consideration at all for its past life.

The middle section of the film at 00:03:42-00:04:22 shows the images taken in the centre of Gloucester. This was a complicated section to edit because I hoped to retain the general structure of approximately 10 seconds per clip, but aiming to have no humans as

the main subjects of the images proved complicated. As described, there are people moving in the background in some shots which I happily accepted, however I needed to struggle with the clips I had available in order to find around 10 seconds of each without people passing just in front of the camera. At the filming stage, I felt I had captured enough material for this section and was disappointed to find I in fact hadn't.

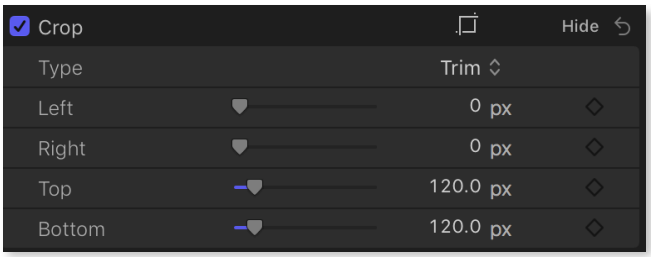
The film returns to the images of the upper sections of the warehouse buildings with the blue sky and the birds forming a new theme, highlighting that nature continues regardless of what happens to human society; the industrial revolution came and went, these warehouses had a golden era then went out of business but still the birds fly across the blue sky. The film reaches its climax at 00:05:10 when we see the previously mentioned clip with the top corner of the warehouse building across which the whole flock of birds passes; this seemed an appropriate moment to begin to close the film. The next shot at 00:05:32 was taken by standing in the middle of the road and filming directly upwards such that the roofs of the two buildings form vertical lines on each side of the screen. From here we move to the images of just the blue sky, again taken by facing vertically upwards, but in such a way as to avoid any aspects of the building entering the frame. Fortunately, three birds passed through the shot, confirming to the viewer that we are looking at the sky, not simply an empty blue shape; I was pleased with this end to the sequence of images as it leaves a question in the viewer's mind as to whether there is hope or not by looking up to the sky.

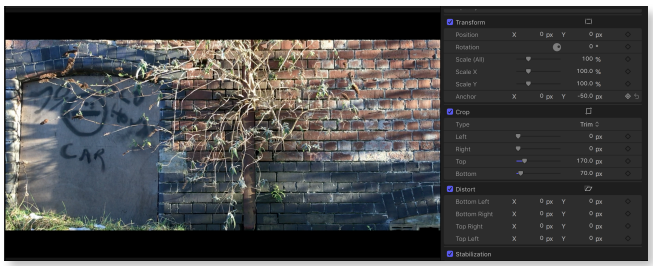
The end credits appear over the blue sky after the birds have left the shot. For continuity, the credits are in the 'Bodoni 72' font as the title was, but this time in a smaller font size of 54, and without employing the 'Stencil Alpha' blend mode. The text is in white in order to be clear on top of the sky blue background. A few seconds after the final title credit the film cuts to black to conclude.

Reviewing the initial edit, I decided to add some instances of cutting to a completely black screen on some occasions through the film. I wanted the black screen, or the absence of image, to be considered as much a part of the visual composition as rests and silence would be part of the musical composition. I knew in advance that by stretching the recording of the poem the gaps between the spoken phrases would be enlarged, thereby naturally creating moments of silence within the composition, so to include some moments of 'no image' would in theory complement the piece as a whole. I

chose to insert the black screen sections before composing the music such that their placement in the timeline of the film was not dictated by the placement of silence in the music, and that if any silences were to meet black screens in the end, it would be embraced as a happy accident. I chose for black screen moments to occur after the opening title, as part of the transition between close-up shots and medium distance shots, before the first introduction of a shot that features blue sky, before and after the urban localities, and finally before the closing shot that features only blue sky and birds behind the title credits.

Also in the review stage, I chose to edit the cropping on all the clips such that the film would appear in ‘super’ widescreen. The clips were all taken with a widescreen 16:9 aspect ratio, however for aesthetic reasons I aimed for wider. To achieve this, on each individual clip I cropped out a total of 240 pixels. Typically I took 120 pixels from the top and bottom of each clip, leaving black space above and below. However, removing approximately on quarter of the overall framing of the image meant that for some clips I needed to also edit the anchor position on the Y axis to ensure that the main subject of the image remained in the middle of the shot. For example, here I needed to move the image upwards, which requires moving the anchor position down. Having moved the anchor position down by 50 pixels, I therefore needed to compensate for this in the top and bottom cropping calculations; here I cropped 170 pixels from the top and 70 from the bottom to make the total of 240, but with with the image still appearing in the centre of the frame.





A further complication in the creation of the ‘super-wide’ profile involved shots that were not perfectly straight and needed correcting. For example, the shot of ‘Raffles Amusements’ at 00:03:42 required -0.5° of rotation (that is, in the clockwise direction) to appear straight. In *FCPX*, after rotating a clip, if one crops any side of the clip, the areas of black outside of the crop have the same degree of rotation applied to them. Finding a workaround to this solution, I inserted two rectangles from the shape generator menu,

scaled their size such that they would fit the full width of the screen and positioned them at the top and bottom of the picture such that they appear to ‘crop’ the same amount of the images as the initial crop process achieved. I realised retrospectively that I could have generated these two rectangular shapes, placed them in position and left them above all the video clips in the timeline meaning they would have created the ‘super-widecreen’ effect without me needing to spend time cropping each and every clip, thereby saving editing time across the project; I would only have needed to edit the anchor positions of clips where changing the vertical profile was required.

Compositional Concept

As previously mentioned, the compositional concept was to record myself reciting the poem, stretch the audio to the length of the edit of the film and transcribe this result for instruments; I would then place this alongside a second stretched recitation of the text. For this master’s degree, we were lucky to have the opportunity to compose a soundtrack to a short film that would be played live by members of the Ionian Festival Ensemble at Theocharakis Foundation for the Fine Arts and Music Concert Hall on February 23rd, 2018; the ensemble that I would compose for was flute, clarinet and viola. As such, the compositional concept of transcribing the stretched poem was amended to account for this specific instrumentation, such that my short film, *Edge*, would be screened at the event with the score performed live.

I decided to assign the instruments to specific results of the stretching process as I could imagined the resultant piece before writing it. The viola was chosen to represent the long vowel sounds because of its ability to glissando between notes as spoken words often include fluctuations in pitch during the vowels sounds. The flute would play legato with the viola throughout and represent the consonant sounds, with the sibilant consonants (s, sh, t, d, ch) played in harmonics; I decided this because I knew that after subjecting spoken word to the stretching process, the sibilant sounds come across shrill, high and sharp so I felt flute harmonics would illustrate this well. The clarinet would take two roles: the first to break the legato flow of the flute and viola, and the other to represent the moments of breaths in the stretched audio. I intended for the clarinet’s interjections to be louder and harsher than the warm legato of the other instruments, and also to make use of short durations that do not make the rhythm or tempo clear to the audience. When sent through the stretching algorithm, a simple breath ends up lasting a few seconds,

giving me a moment where the flute and viola would of course be silent (following the concept), allowing the clarinet to play something interesting which could be drawn from contemporary extended performance techniques. As the piece is concerned with the passage of time and not with any specific rhythm or pulse, I decided to score the transcription at 120 BPM to make it easier for the musicians to follow the timecode references that I would add to the score. As such, phrases would start and end at whatever rhythmic position the process dictated within the context of the 120 BPM context.

I conceived that the second recitation of the poem that would be stretched to the same length as the first and run alongside the musical transcription would be delivered by a female collaborator, Alkistis Polychroni. She would recite the poem in her own chosen manner, pace and tone, without first listening to my recitation to make hers unique unto itself. The thinking here was twofold: both that the version of the poem that the audience can almost hear the words of is delivered by a female voice, closer representing the female narrative voice of the original poem, and that we then have both a female and male version of the poem represented in the final piece — two iterations of the same metaphor that together encompass the full human condition.

I decided that the poems, in both vocal and instrumental form, would be stretched to around the 00:06:30 mark, such that the end credits of the film would be silent and leave the audience to assume the musical composition is finished. I conceived that after the final credits, the three instruments would break the structural concept of the composition altogether: I would choose five 3-note chords that the ensemble would play together — the first and only time in the whole piece that the instruments form a purposefully harmonious group. I intended to select a series of 3-note chords that would not be connected by any traditional western classical harmonic continuity, simply five individual chords in a series, such that the piece ends with a mixture of pleasing harmony with a lack of resolution that, together with blue sky intended for the end sequence, would complete the piece in an unexpected way and beg the question I was searching for of whether there is hope after all.

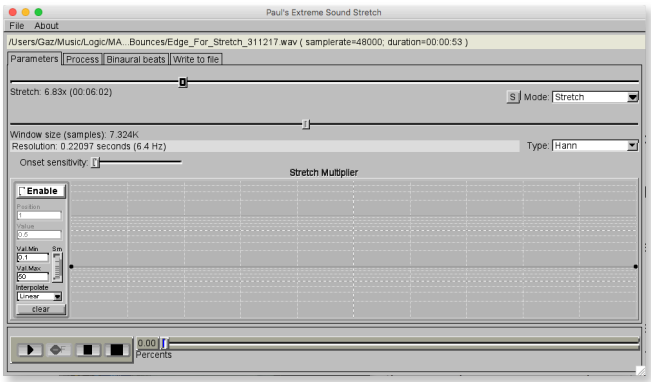
Execution of Composition

The first step in realising this compositional concept was to record myself reciting the poem. I chose a Shure *SM7b* dynamic microphone to capture the delivery as these are typically used for voiceovers in radio studios and therefore seemed a better choice than a condenser microphone for recording this spoken text. The recording chain continued through my Focusrite *Forte* audio interface and into *Logic Pro X*, my preferred DAW for recording and production. Having captured the take — lasting 53 seconds — I produced the recording before bringing the audio into the stretching algorithm. The chain was as



follows: Waves *CLA-2A* compressor > Waves *CLA-76* Compressor > Waves *API 550A* Equaliser > Waves *J37 Analog Tape* emulator > Waves *L2 Ultramaximizer* limiter. This production chain meant early peaks are caught by the first compressor, with the second compressor evening out the overall signal level. I set the *API* EQ module to the 'Speech 1' preset which boosts some high and some low-mid frequencies, into the *J37* tape emulator on the preset 'Male Vocal Warmth' that injects a small amount of analog tape saturation for a thicker and warmer overall sound. Finally I used the limiter to control the output ceiling level (set at -0.1) and boost the overall level by reducing the threshold to -3db. No reverb or delay was used on this recording as I wanted the voiceover to be as clean and dry as possible. I bounced this recording as a 48khz/24 bit WAV to give me the best possible quality audio to send into the stretching algorithm.

To create the stretched audio, I imported the poem audio into the open source software application *Paul's Extreme Sound Stretch*. The producers of this programme describe that it is suitable for the extreme stretching of audio signals, such as by 50x, and that it works by adding spectral smoothing to the sounds, thereby transforming any source audio into a texture. My recording was 53 seconds long and my target was around 6 minutes,



meaning I set the algorithm to stretch by 6.83x; of course this is far shorter than the software programmers' suggestion of 'extreme' stretching in the region of 50x, but this 'closer' stretch multiple means we still hear something of a voice-like quality in the result, rather than an entirely

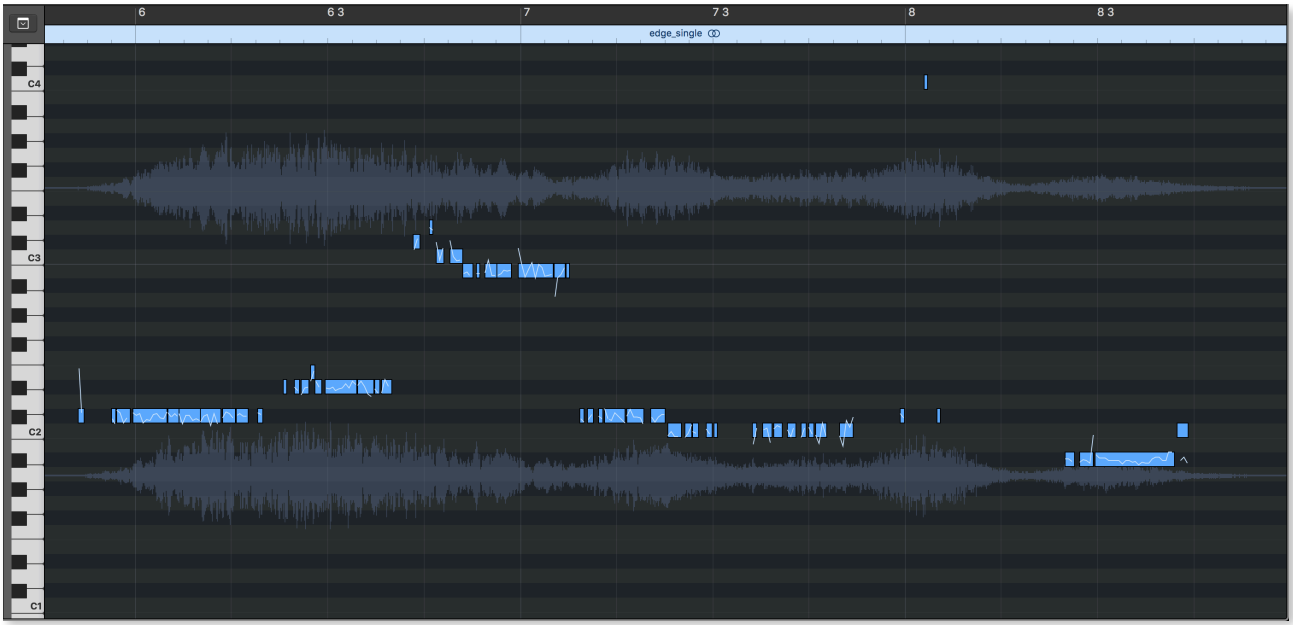
ambient texture. This would prove useful for the second recording that would be stretched and placed in the film's timeline to play alongside the musical transcription. As such I processed and exported the audio with these parameters in order to import the resultant audio file back in *Logic* to begin working on the transcription. (It must be stated at this point that the same recording and production process was employed to record the recitation of the poem by Alkistis Polychroni, which was then synced to the film in preparation for the Theocharakis concert event.)

To begin the process of creating the transcription I used the *Logic* 'Flex Pitch' and 'Audio to MIDI' features. 'Flex Pitch' analyses a monophonic audio file to ascertain its pitch, and 'Audio to MIDI' converts the resulting flex pitch and rhythm data into MIDI information to create a MIDI track, from which I could write the notation. The 'Audio to MIDI' feature does not allow for microtones, so I took the MIDI information as a basis for the pitch of each note/phrase and for the note durations, but listened to the stretched poem audio with a piano and a tuner to decide whether any analysed 'note' of the poem was 'in tune' with the western chromatic scale, or whether I needed to edit the notation to allow for microtonal tuning. The reason I made use of these tools rather than just my ear was not only to speed up the transcription process, but also to ensure that the note durations remained true to the poem audio within the context of the aforementioned 120 BPM project tempo. Of course, it was not a problem-free process.

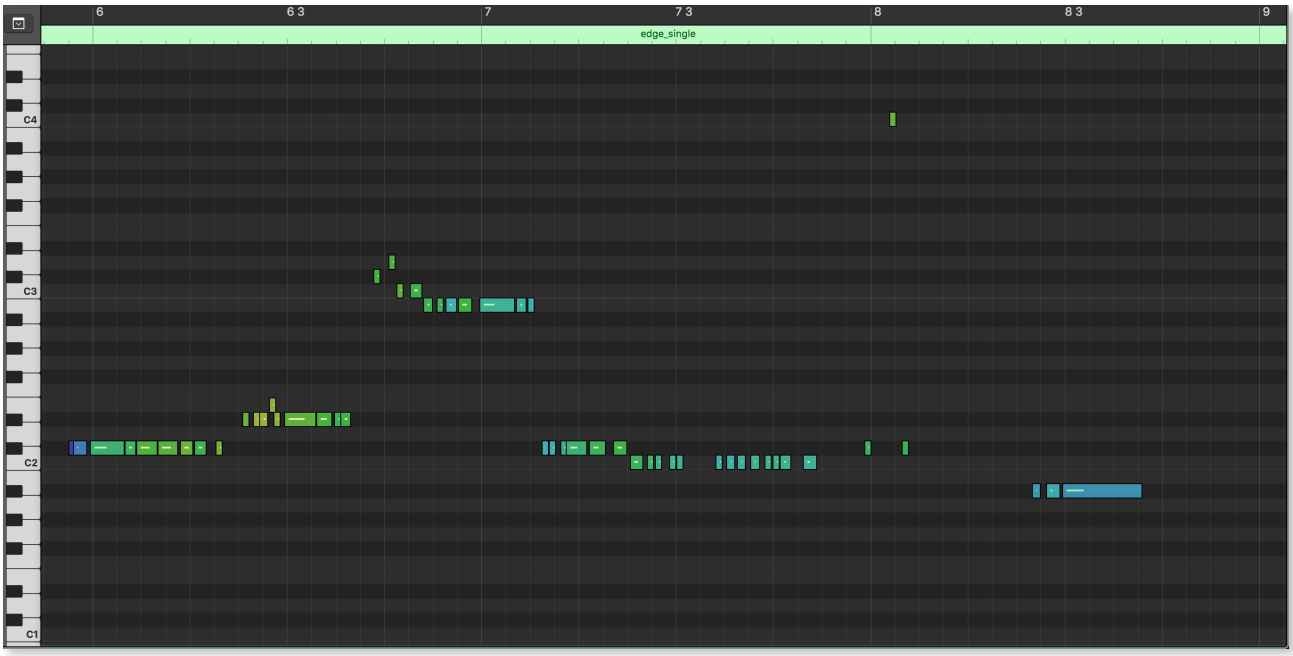
If one uses these features to create a MIDI track from, for example, a monophonic audio recording that is generally 'in tune' and 'in time', the algorithm is remarkably accurate in its ability to represent the audio. However, when engaging these features in the context of spoken text or, as in this case, *stretched* spoken text, the algorithm can struggle to understand the pitch data as the spoken 'note' changes in pitch throughout its duration and in differing degrees, and therefore the algorithm often thinks there are many notes at play.

The below image shows the 'Flex pitch' data for the first phrase, "The woman is perfected," which I will use as a case study to describe some of the challenges involved in transcribing this way, but also how I was able to use the challenges to a positive creative effect. The light blue blocks are the 'corrected' pitches, as in the closest 'tuned' note. Within these blocks, the white line is the actual pitch of the audio (as ascertained by the algorithm) which we can see is consistently varying around the supposed 'tuned'

pitch. The algorithm sometimes ‘hears’ the pitch as randomly jumping up an octave or two; my voice certainly did not jump up an octave or two during my recitation of any section of the poem, however in the opening line that we are studying here, at around beat 4 of bar 6 the MIDI data jumps up one octave, and just after the start of bar 8 it jumps up two octaves. As discussed in the initial compositional concept, these imperfections would inform the clarinet part, interjecting in the legato flow of the viola and flute parts. The grey/blue shape of the waveform of the audio that is visible behind the light blue pitch data shows that the phrase is one complete sound from its beginning to its end, however the algorithm has created numerous short notes and several silences; for this reason I needed to refer back to the waveform and ensure the duration of each note matched what I actually heard in the audio file.



FLEX PITCH DATA



AUDIO TO MIDI DATA

After the ‘Flex Pitch’ algorithm has generated the above information from the source audio file, I selected the ‘Create MIDI Track from Flex Pitch Data’ option which generated the MIDI information shown above. As we can see, the fluctuations in pitch are entirely removed and corrected to the nearest stable chromatic pitch, and clearly the rhythmic data has nothing to do with that we actually hear. For this reason it was only possible to use the pitch information as a starting point for the scoring and it was obviously necessary to turn all of the short notes into long notes, but using the rhythmic data to inform where the notes would start and end in regards to the bar and beat framework. As an example of how incorrect the scoring of this phrase was before I corrected the issues, here is the same phrase with the MIDI information opened in the Logic ‘Score Editor’:



However, this starting point was useful and, as discussed, informed the clarinet part. I therefore set about creating a new score that would incorporate the useful information from the ‘Audio to MIDI’ feature in terms of the rhythmic position of the beginning and end of the notes, would be true to the original audio by checking the pitching by ear and with a tuner so as to include microtones where necessary, and that creatively embraces the errors brought about by the algorithm to generate material for the clarinet part. Listening to the original recording also made it clear at which points the flute part needed to represent sibilant sounds. Here is the final score for the opening phrase (up to bar 8). We can see that the viola part uses a half-flat in bar 7. The clarinet has a gesture reminiscent to



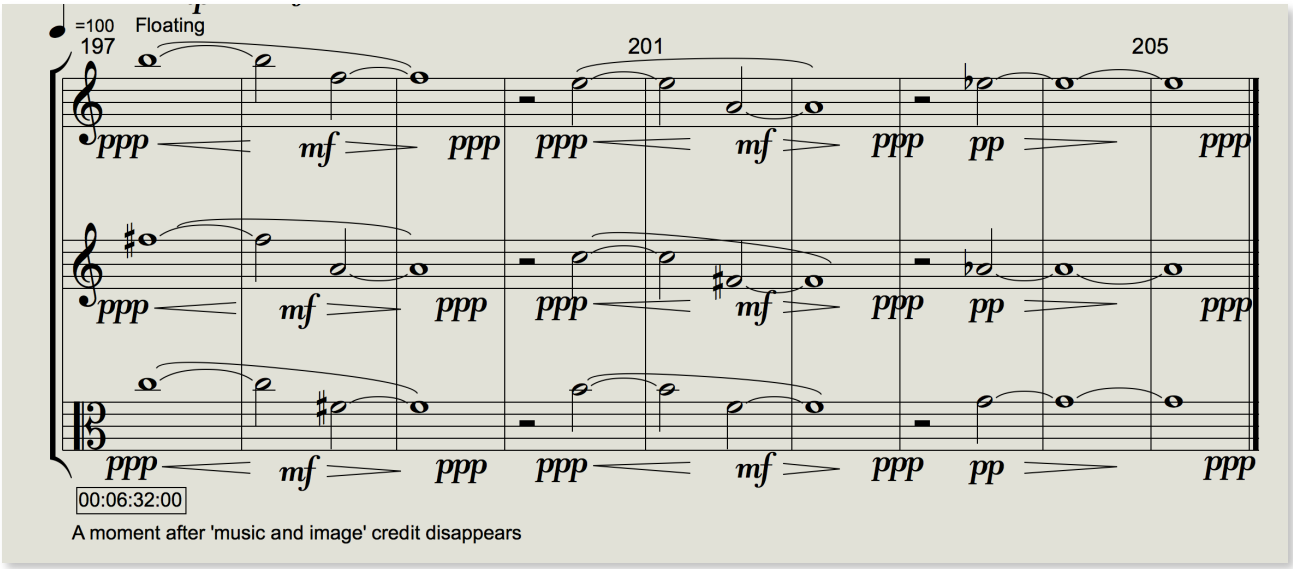
the first octave jump generated by the algorithm, and the flute plays the sibilant sounds in harmonics (‘s’ from ‘is’ and ‘t’ from ‘perfected’).

This opening phrase also shows some other techniques I employed throughout the scoring of the piece. The viola part calls for ‘sul tasto flautando’ performance technique on string ‘IV throughout’ in which the player bows over the fingerboard of the instrument and with very little weight behind the bow; the bow position and movement on only the 4th string create a warm sound throughout the whole piece by removing many of the higher harmonics that would be heard when bowing closer to the bridge, moving the overall viola sound toward the direction of my vocal timbre. In the flute part we observe that the dynamics of its gestures begin at ‘zero’ (or, as quietly as possible) and fade in to the given dynamic, then fade back out to ‘zero’; this technique is employed to help the legato flow between the viola and the flute, and also because the sibilant sounds in the stretched audio recording appear to fade in from, and return to, nothing. As mentioned, the opening clarinet gesture is taken from the algorithmic error but with some edits to the note durations in order to ensure it remains true to the compositional context such that it doesn’t offer any clear sense of pulse, instead offering an ambiguous rhythm that interjects into the legato nature of the other parts. We also see how I employed timecode references to help the musicians stay in time with the piece: timecode is in boxes located directly under the specific staff they refer to, and indicate the SMPTE position at the start of the bar in which the next gesture occurs in that instrument. I proceeded in this manner until I had created a transcription of the complete text.

As I anticipated when structuring the compositional concept, the musical transcription and the stretched audio of the second reading of the text by Alkistis Polychroni interacted in a sort of dialogue. At times they would be heard together, at times only one would be heard and the other silent, and at times their silences lined up. I decided to interfere slightly with the compositional concept of leaving them exactly as they came out of the process for one section, embracing a moment of shared silence that occurred at 00:04:22 and extending it to around 10 seconds to emphasise how important the silences are in the overall soundtrack. This point occurred just as the images in the film move from the contemporary urban locations back the abandoned warehouses meaning that it gives the viewer the opportunity to consider their interpretation of the link between the urban localities and why I chose to move back to the industrial buildings without listening to new information in the soundtrack.

After completing the transcription of the recitation of the poem and reviewing the piece, imagining the sound in my head as I read the score alongside the stretched second recitation of the text, at this point the idea came to me to add the chord section after the closing credits. I was pleased with the soundtrack seeming to be finished just before the credits and was considering creating a new idea that could somehow break the concept that I had remained true to for the whole piece up to this point. As I was composing for an ensemble of 3 instruments I decided to create a short series of 3-note chords that could close the piece, with the idea being that returning to the video editing stage I could insert a black screen after the credits such that this harmonic sequence ended the film with no images on top of it.

I composed the harmonic sequence at the piano with the general idea being that the five chords would be voiced rather closely, would not be instantly identifiable as any form of triad and would lack a sense of western classical harmonic continuity. I added the word ‘floating’ in the score to emphasise the nature of these chords coming out of the final images: a clear blue sky that three birds fly over; the three birds perfectly representing the three instruments in the ensemble. The tempo is slightly reduced here to 100 BPM but the rhythm and duration of the chords continues the pulseless nature of the overall piece. The voicing of the chords creates the impression that the harmony is descending, like a bird coming in to land, only to rise slightly for the final chord. Each chord fades in from, and out to, nothing to enhance the ‘floating’ sense of the section. I am very pleased with this



choice to end the piece; breaking my own rules was exciting, and also the ambiguous harmony created an interesting juxtaposition between the instruments playing entirely

together for the first time in the whole piece against the curious chordal texture they create. My aim was to beg the question, ‘is there hope after all?’ and in my personal opinion this harmonic sequence in this form achieves this aim.

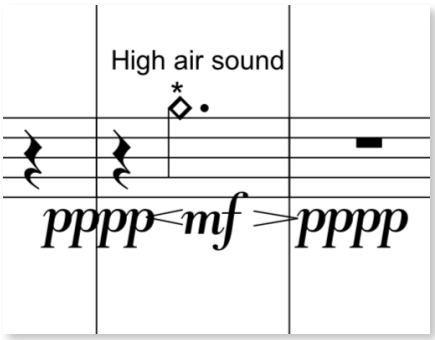
Film Screening with Live Performance of Score

I was delighted to have the opportunity for my film to be screened with the score performed live by professional musicians at Theocharakis Foundation for the Fine Arts and Music Concert Hall in Syntagma, Athens, on Friday 23rd February 2018. In preparation for this event I produced a clear and detailed score and parts for the composition to send in advance to the musicians (see appendix - ‘*Edge* score’). The following musicians formed the ensemble:

Ana Chifu - flute
Merkourios Karalis - clarinet
Eleftheria Togia - viola
Stefanos Nasos - conductor

I also sent compositional notes to the team to help them understand the concept and intention of the piece in advance of their rehearsals, with the aim of deepening their connection with the material. The full document can be referred to in the appendix (‘*Edge* compositional notes for musicians’) but, to summarise, it focused on the following: describing the link between the text of the poem with both the images and the musical composition; the intended dialogue between the prerecorded stretched poem audio and the live instrumental performance; notes on the scoring including how to read the timecode references and the overall intention of the interaction between the instruments; individual notes for each instrumental player regarding their parts; and technical details regarding the film and its production credits.

I was able to attend the musicians’ rehearsals in the space which was a positive experience for the outcome of the final piece. Not only were we able to discuss the way the parts were played, we were also able to discuss any potential changes that needed to occur based on seeing and hearing the performance in context. One such edit I made was following a detailed conversation with Merkourios Karalis, the clarinetist. To represent the moments where a breath was taken in the poem recording, which when stretched lasted a few seconds, I had scored a ‘high air sound’ for the clarinetist to play. This was scored on the high G of the treble clef with a diamond notehead and an asterisk (*) above the note position. In the compositional notes I stated: “the fingering is not of concern, the



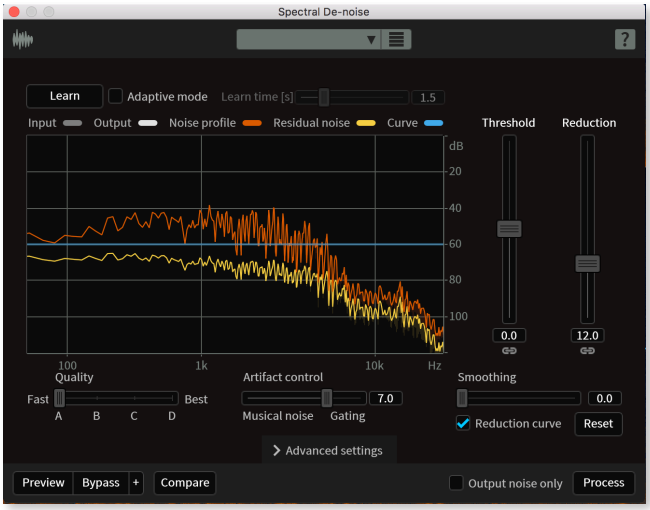
goal is simply a ‘high air sound’. In all cases of high air sounds the dynamics fade in from ‘nothing’, reach ‘mp’, then fade out to ‘nothing’.” In discussion with Mr Karalis we came to a mutual agreement that the ‘high air sound’ I called for was so quiet that it was lost in the space, particularly if it occurred against a loud moment of the prerecorded track, and also that as the clarinet plays solo at these moments (in the context of the ensemble), we could represent the breath of the poem recitation with something more interesting that incorporates contemporary extended performance techniques. We agreed upon him following the scored dynamic markings, but making use of multiphonics in these moments, such that each occurrence of the ‘breath’ is slightly different: a simple multiphonic sound with a low base note, the same with a higher base note, and a trilled multiphonic sound where he trills rapidly between different keys that create almost the same note. It was a powerful experience for me as a composer to speak in person with the performer and for them to offer suggestions as to different options their instrument has available and to co-create the best solution for these moments.

I planned to record the musicians performing the score in order to use this for the soundtrack of the final film. To prepare for this I positioned two handheld stereo condenser recording devices in the centre of the ensemble — my Sony PCM-M10 and a Zoom H5, belonging to my colleague, Giannis Maramathas — in order to capture the performances on both devices to be prepared for any potential failings of one device. In order to have as much material as possible to work with, I recorded the rehearsal the day before the concert, the dress rehearsal on the day of the event and the live performance during the concert itself. The event was a huge success and I was very pleased with the musicians’ interpretation of my composition and the material recorded that I would use to create the final soundtrack of the film.

Production of Final Soundtrack

I imported the live stereo recordings into the computer in order to review the material I had available. It immediately became apparent that the musicians’ position on stage, and therefore that of the stereo field recording devices, was very close to the projector that was projecting the film, meaning the hum of the projector’s cooling fan is present in all the

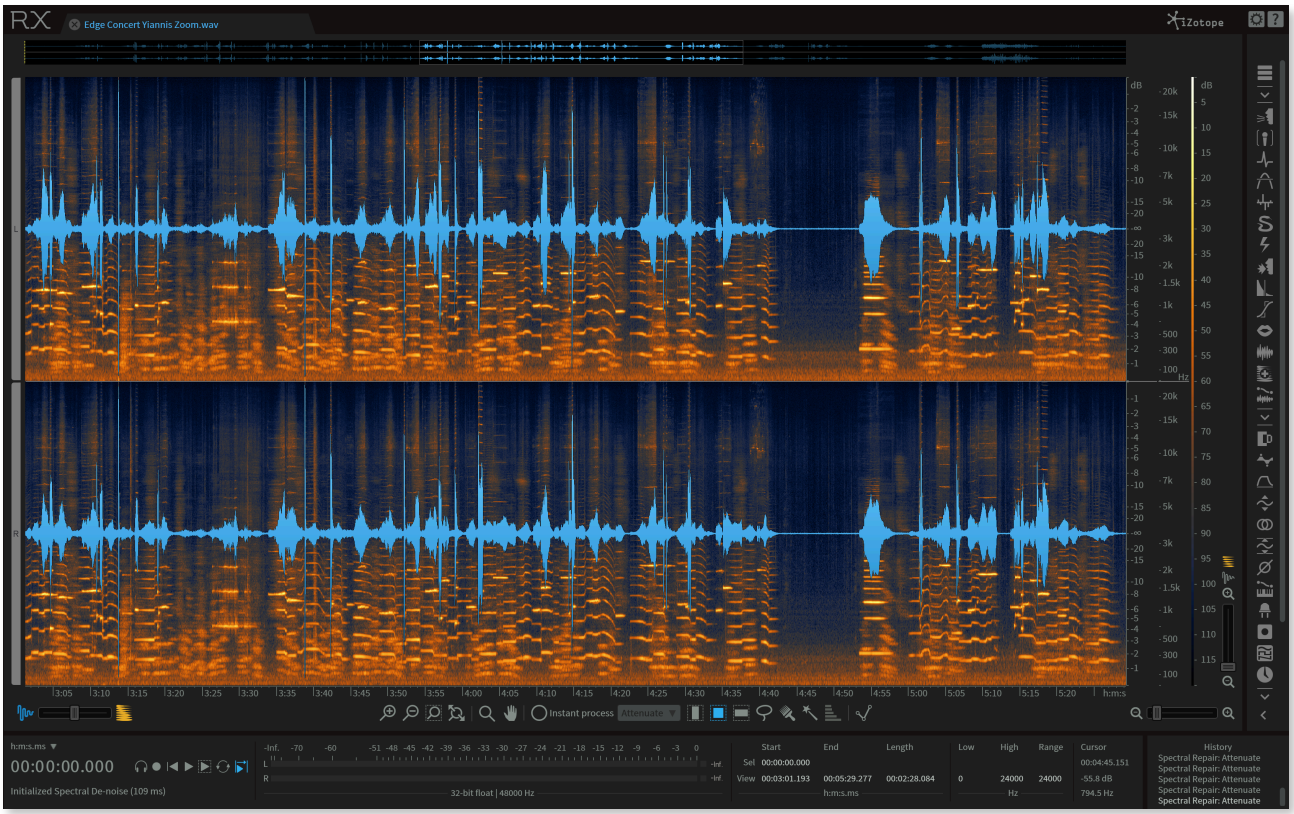
recordings. Also the noise of the room from its air conditioning unit and the hum of the lights and other electronic devices combines with the projector fan resulting in a generally noisy set of recordings. To try to remove as much of the unwanted noise as possible without compromising the quality of the musical content within the audio files, I used iZotope's *RX 6 Audio Editor* software programme (RX 6). The first plugin I applied to the recordings was 'Spectral De-noise'. I fed a few seconds of the audio signal into the plugin at a point where there was no sound other than the undesired noise; the algorithm analyses the spectral content of the audio in order to determine what frequency content is undesired to then remove it from the whole duration of the audio file. After processing the change, I was able to listen to the resultant audio file — both at points with and without music — and tweak some of the parameters within the plugin to achieve the optimal noise removal from the audio.



With the three recordings as 'noise-free' as possible, I then set to work within *RX 6* to remove some other undesirable sounds that were in the recordings. Of course, as the recordings were made live, some organic sounds that may naturally occur are acceptable, however I was very disappointed to find that during the two rehearsal recordings there were several instances of people having conversations in the space, and also some walking around on the wooden floor, which naturally was picked up by the stereo condenser microphones.

RX 6 features a 'Spectral Repair' plugin that allows one to view both the waveform and the spectrogram of the audio. In order to find and remove undesired sounds, the plugin enables one to zoom in on a certain area of the file to find the audio content at certain frequency areas. Once the problematic area is identified, one draws a box around it and removes the frequency content within the box for the duration of this box. After painstakingly working through the three recordings and trying to remove many unacceptable sounds as best as I could without interfering with the musical content, I

was able to import the new audio files into *Logic Pro X* to begin the process of mixing the music.



I lined up the three recordings against the stretched poem audio using the initial entry of the stretched phrases in the prerecorded track as a time guide. As the stretched poem audio was embedded in the film for the Theocharakis event, the microphones also picked up a small amount of this track, albeit at a fair distance from the speakers. This audio content could not be removed from the audio files, but nor did I desire to do this as it ended up occupying the same production role as a ‘reverb send’: the poem audio being quiet in the mix and being picked up in the microphones with the spatial content of the concert hall included.

Having lined up the three musical performances, my initial plan was to work through the sections and create a ‘comp’ track — cutting and fading between the best take of any section to create the best overall performance drawn from all the available takes. At this point I realised the ‘comp’ idea would be complicated: the microphone positioning, and that of the musicians, was not exactly the same across all the takes meaning the sound is slightly different, just enough to be noticeable. As such, even though all three takes had different imperfections in terms of musical performance or unremovable undesired noise, I

had to select one take to use for the whole piece. When listening to each take in solo to decide which was the best, I stumbled upon a 'happy accident': I accidentally disengaged the solo button for all three takes together meaning they played together simultaneously, and instantly the result seemed like something special to me.

I noticed that, even though the players were following Mr Nasos, the conductor, and that Mr Nasos was following the timecode references on the score, nonetheless the natural human inconsistencies and fluctuations in tempo and timing resulted in the three audio tracks being slightly out of sync with each other. Mr Nasos did not conduct with a click track, meaning there was always every possibility of some natural and acceptable variations. The result means that each phrase and each gesture in one recording may appear slightly before, after, or at the same time as the same phrase in the other tracks. The key here is that the extent of the difference fluctuates. Even the fluctuation fluctuates. I used the *Logic* 'Direction Mixer' plugin to pan one take 80° left, one 80° right, with the third take remaining in the centre of the stereo field. The result here is that as the different iterations of each phrase and/or gesture enter in the different tracks, the listener's perception of the space and width of the resulting soundtrack is altered.

I have recently been studying heterophonic music and the moment I initially heard the three recordings layered on top of each other, the result made me think of heterophony; we hear the same musical material repeated in slightly varying iterations at different points in time. It can be seen as linking to aleatoric music also, in that the fluctuations in time are by chance, and how far and how rapidly the stretching of the temporal perception of the score changes is also by chance. Of course, it is also by chance that I stumbled upon this concept for the soundtrack and for me, this 'happy accident' took my composition to another, entirely unexpected level: beauty in distress is considered 'sublime'. This overlap in fluctuations took the recordings of the three beautiful performances and threw them into distress. In my estimations, the result is sublime.

With the recordings processed in *RX 6* to remove the undesired sonic characteristics and lined up in (their own version of) time using the cue of the entrance of the prerecorded stretched poem audio, I was ready to mix the final version of the multi-layered musical score and combine it with the prerecorded poem audio to form the final soundtrack. As mentioned above, two of the recordings were placed to opposing sides of the stereo field using the 'Direction Mixer' plugin, with the third recording remaining in the centre (leaving

the pan pot in the centre in all cases). I then applied the following effects chain to each individual track: Channel EQ, iZotope *RX 6 Spectral De-Noise*, Waves *L2 Ultramaximizer*, Waves *CLA-2A compressor*. I set the EQ to a high pass filter at 57Hz with a relatively high 'Q' to cut the extreme low end where some remaining electrical hum existed. The recordings had already been processed with *Spectral De-Noise*, however iZotope recommend trying multiple instances of the same plugin processing to further remove the hum; as such, I repeated the process to remove as best as possible the remaining undesired energy in the signal. Even though the dynamics in the music were performed as written, the contrast between the frequent fortissimo gestures in the clarinet and the general mezzo piano area of the viola and flute meant the dynamic range in the recording was too high for it to work without some limiting. I used a threshold in the region of -11db, though unique to the level of each recording of course, to capture the extremely loud clarinet phrases. When 'reeled in' like this, the overall recording benefits as the clarinet still sounds fortissimo, but simply its level on the track meter does not spike so much. Finally, I dialled in some very subtle compression meaning that, in combination with the limiter, I could raise the overall level of each track without comprising the natural dynamic range.



The audio output of the three recordings was then sent to a 'Bus', on which I placed the Waves *CLA-76* compressor to glue together the combined sound of the three recordings. I created another 'Bus' track on which I placed the *ChromaVerb* reverb plugin, using the 'Concert Hall' preset that I tweaked to my taste, sending the signal from the sum of the stereo recordings to this 'Bus' at a level of -20db; this subtle amount of reverb helped the three recordings blend together. I brought in the prerecorded audio of the stretched poem recited by Alkistis Polychroni to balance in the overall soundtrack mix. This audio was already mixed prior to the stretching process, as described above, and as such it simply needed the volume fader on its stereo track moved until the correct balance was found between this track and the live stereo recordings group.

I mastered the audio by adding the following processing on the 'Stereo Out' track: Waves *SSL G-Master Buss Compressor*, Waves *Kramer Tape*, Console EQ, and Waves *L2*

Ultramaximizer. The SSL ‘Buss’ compressor glued together the overall mix. I engaged and tweaked the ‘Mastering Clean and Open’ preset on the *Kramer Tape* plugin that injects an amount of analogue ‘life’ and ‘warmth’ into the audio signal. I used the ‘Enhanced Mix’ preset on the Console EQ plugin that boosts some high-mid and some low frequencies as well as injecting a small amount of smooth ‘drive’. I used the *L2* limiter at the end of the chain to boost the overall level of the signal to a level that competes with contemporary professionally-released productions, and placed the output ceiling at -0.5 to ensure there would be no clipping in the audio. I bounced this audio and synced the file to the images back in *FCPX* to complete the film.



Conclusion & Next Steps

I would review that while I am very pleased with the the film, the musical composition, and their combination as one piece, there are some improvements I would make if I went through the process again. I am happy with the quality of the HD film footage captured on my iPhone 7 that, particularly in high quality light, looks very good, however if I had available to me a professional standard camera that would of course have been preferable for the best possible image quality. Similarly, to record the live soundtrack I only had the handheld stereo field recording devices available to me. Whilst these devices are good enough within their fields, it would of course have been preferable to make a multitrack recording with each instrument occupying its own channel to increase the options available to me at the mixing stage. As mentioned above, I am pleased with how the clarinet part interjects on the smooth flow of the dialogue between the viola and flute, however, in practice, the many fortissimo gestures are rather piercing in the context of the piece as a whole; this goal of breaking the flow could likely be achieved with the same parts at less powerful dynamics.

Having completed the film to a standard of which I am proud, I decided to submit it to the short film, short experimental, or music score categories of several film festivals. I applied to the following festivals, all of which are still pending: Athens Short Film Festival, Bristol Short Film Festival, Edinburgh Short Film Festival, Melbourne Short Film Festival,

Brussels Independent Film Festival, Psarokokalo International Short Film Festival (Athens), London Short Film Festival, Aegean Film Festival (Athens), the Ivan Juritz Prize (short film section), International Festival of Video Art and Visual Music (Mexico City), Ionian University 12th Audiovisual Arts Festival (2018), and ‘Tech Break’ at Athens Digital Arts Festival.

EL EMPLEO

Music, sound design and foley



Overview

Released in 2008, *El Empleo* is a short animated film by the Argentine director Santiago Bou Grasso, for which I created a new, complete soundtrack, starting from a video with no audio. The soundtrack comprises a musical composition, sound design and foley.

Concept

After watching the animation I noted the sense of solitude surrounding the protagonist, which I wanted to bring into the musical composition. The pace and mood of the animation is generally slow and calm so I intended to reflect this in the tempo and manner of the composition. Planning my musical composition, I aimed to use a guitar as the main instrument in the piece with a minimal motif played through tape delay and spring reverb into a clean amplifier with a warm tone. I wanted the spotting of the music placement to help create the space that the animation calls for and represents the loneliness of the protagonist. I intended to create sound design and foley tracks by utilising real-world audio samples from my sample libraries and sounds that I would record myself in combination with electronic sounds that create a generally realistic sonic texture, such that it does not compete with the fantastical nature of the story of the film. The plan was to present the most realistic sound bed for the entirely non-realistic animation to aid the impact of the unexpected fantastical subject matter as it unfolds through the film.

Musical Composition

I selected the following minimal instrumentation for the composition: electric guitar, software synthesiser, electronic beat, cello, secondary string ensemble and sub (sine wave). The role of each of the instruments within the ensemble was as follows: the single guitar would represent the solitude of the protagonist with thick and rich broken chords, combined with the lead synth sound that brings to life his journey to work; the cello sample library software instrument in combination with the string ensemble software instrument gives warm harmonic texture to the guitar; the electronic beat brings some pace to the arrangement during the credits section; the sub adds depth and low frequency/bass energy to the orchestration.

I spotted the animation to decide at which points music should occur and what its purpose would be. The first musical entry would be just after the protagonist has switched off the alarm clock as this signals the start of his day; the guitar would be heard solo here to represent his calmness and loneliness. This cue would continue until the protagonist leaves the house, but as his morning routine begins the synth sound would be introduced, but continuing to enhance the sense of space and the calm pace of the scene. The next cue would be during the journey to work, increasing the pace of the

guitar to represent the change of rhythm in the scene, and introducing the strings and sub to add depth and texture. As the protagonist arrives at his workplace and moves through the building at walking pace the urgency of the guitar would be reduced. This cue would end as the protagonist moves from the changing room to his work post to allow the 'reveal' moment of the film to be presented with no musical accompaniment. The next cue would be a short expanding texture as the camera pans away from the protagonist after the 'reveal' moment, but this would be coming from the world of sound design combined with the sub to intensify how the 'reveal' moment is digested by the viewer. The final cue would enter as the credits begin and would pick up the pace again, using the material from the faster 'journey to work' section with the rest of the ensemble in, including the addition of the electronic beat to help increase the pace. This closing cue would end before the small 'joke' at the end of the credits that references the characters of the animation, such that this comedy moment 'cuts' the musical composition.

I began the composition with writing the guitar part as I intended for this to be the main instrument in the ensemble. I used a motif employing broken chords based on the F# minor scale with added notes, with each broken chord followed by a bar's rest such that the main motif of the piece has space inherent in it. Using the 'Bigsby' whammy bar of my Gretsch guitar, I was able to move the pitch of the ringing chords down and up to inject a floating quality into the motif. The harmonic pattern involves the chords F#m11, Dmaj9+6 and Aadd9, and would be employed for the cue from 'waking up' to 'leaving the house'. As the synth is introduced in the 'morning routine' scene, it plays a call and response game with the guitar, filling in the rests in the guitar part with single notes whose pitches also fluctuate as they fade, matching the floating quality of the guitar. The cue finishes with a major chord, purposely leaving the viewer with a positive feeling so as to not introduce a sense of impending thematic darkness that is to come in the film.

The second cue for the 'journey to work' begins after the protagonist hails the 'taxi' as the shot cuts to them running to work. Here the guitar motif is developed to include more frequent notes and a new chord progression featuring Bm11, Cmaj7, Amaj9, G#m, F#m, E and Dmaj9+6. The cello and ensemble strings sample library software instruments add depth to the chords to further reduce the space for this section the piece as the protagonist journeys to work. A short instance of space is added as the traffic lights are red to match the characters' pause, and as the urgency returns with the movement, the sub is introduced to continue the subtle sense of a build through the progression of the

piece. The synth is removed for the beginning of the journey so as to not thicken the texture too much here, but reintroduced as the character walks through the work building as space is freed up when the guitar part returns to it's original picking pattern with less frequent notes and more rests in which the chords ring out.

The next cue is the short 'expanding texture' after the 'reveal' moment as the camera pans away from the protagonist, made up of the sub playing a low B that fades in and out, coupled with two sample from my sample libraries: a low sweep and a low frequency energy rumble. The B in the sub gives harmonic context to the otherwise atonal sounds, with the two samples giving tension and darkness. The texture fades in and expands in dynamics as the camera pans back and fades out once the camera has settled at the medium-distance closing shot. It has completely faded before the protagonist's final breath and blink that lead into the closing credits cue.

The final cue, over the closing credits, repeats the material from the 'journey to work' section but with the addition of the lead synth and the filtered and effected electronic beat; all the ensemble play together for the first time. The cue begins exactly as the shot cuts to a black screen. The cue returns to the opening guitar motif to remind us of the start to the character's day, but that on this occasion finishes unresolved before the 'joke' animation that closes the film. This lack of resolution is designed to increase the impact of the 'joke', as well as leaving the viewer with a feeling of subtle tension.

To mix and master the music track, I used Native Instruments *Guitar Rig 5* amplifier simulator on the DI guitar track, with a clean and warm amp with the tape delay module added. I used EQ and compression on the guitar track to help it sit in the mix in the context of the other instruments. To the synth track I added the iZotope *Vinyl* plugin, with 29% 'warp depth' engaged making the pitch of the synth track fluctuate up and down slightly, similar to a warped vinyl record. The electronic beat sample is already filtered, but I added a fair amount of saturation with the Soundtoys *Decapitator* plugin to warm it up, as well as sending it to a room reverb plugin to help it sit in the mix. I used the same saturation plugin on the cello track with a very low dry/wet level, with full drive and a dark tone to add some low end warmth to the cello part. I added Soundtoys *Microshift* to the string ensemble track with the 'Wide Reflections' preset to increase the stereo width of this part. I sent all the music tracks to a 'Bus' channel that I could process independent of the sound design and foley, onto which I added Waves *SSL G-Master Buss Compressor*

to glue together the mix, followed by Waves *Kramer Tape* plugin to inject some analogue warmth.

Sound Design & Foley

To create the sound design and foley tracks, I muted all the music tracks and reviewed the film from start to finish. I initially added spatial placement blanket sounds: a room tone for the house scene, a ‘city’ sample for the journey to work (featuring no cars as there are no cars in the animation), and a different room tone for the workplace building, which changes again only whilst the protagonist is inside the lift. On top of these foundations, I built the rest of the sonic material scene by scene.

For the ‘waking up’ scene, I added the ‘tick-tock’ sound of a digital clock, but had to cut the individual tick and tock sounds and match them to the animation as either the sample or the animation was not ‘in time’; this was a long and arduous process. I decided that this clock ticking would open the film and fade in over the opening credits screen before we see the clock, giving the viewer an impression of what is to come in advance. There is an alarm sample as the clock strikes 7:15, followed by a ‘switch’ sample as the alarm sound is switched off. I recorded myself exhaling deeply after this — the protagonist’s first waking breath of the day. I used a bare feet walking sample as he moves through the room which I cut to match the pace of his steps. I added a new switch sample for the light and an electrical hum sound as the bulb is turned on. I automated the filter frequency on an EQ plugin insert as the bulb flickers just after the title fades away on screen.

For the ‘morning routine’, I added a shaving sample, before recording some cup sounds to match the character’s movements during breakfast, with the same footstep sample as before used when he walks. As he prepares to leave the house, I recorded a cough and then the sound of picking up a bag, coat and keys. I combined two door samples to create the door opening and closing, which again I combined with the footsteps sample.

For the ‘journey to work’ scene, I used a running footsteps sample, recorded the sound of myself mimicking the movement of the traffic light characters’ jackets with my own, then added two further running footsteps samples for the section where there are three human ‘taxis’ on screen. More footsteps follow as the protagonist enters the building, including multiple layers of a single loud step for the four characters who are the ‘door’. After a

different footstep sample for the protagonist that shows he is in a new space, combined with another for the second character as they both walk to the lift, I edited a lift sample to represent the various aspects of the journey in the lift as it is presented in the film. I used this new footstep sample again as the character moves to the changing room. I edited a 'cage door' sample for the locker in order to have the metallic quality that was required here and added my own recordings of hanging up the bag and coat.

After he walks to his work post with the same new footstep sample, I recorded myself lying down to match the protagonist's lying down. Yet another footstep sample is used for the new character that approaches, coupled with the editing of two door samples as they enter and shut the door. Whilst they rub their feet on the protagonist, I recorded myself performing the same motion with my feet on a thick rug. To create the sound for the 'joke' at the end, I used a 'knife throw' sample that I stretched and edited to sync with the throwing of the lampshade. I used a different section of the same barefoot walking sample employed in the 'waking up' scene as the final character walks off screen.

Final Mix & Production of Complete Soundtrack

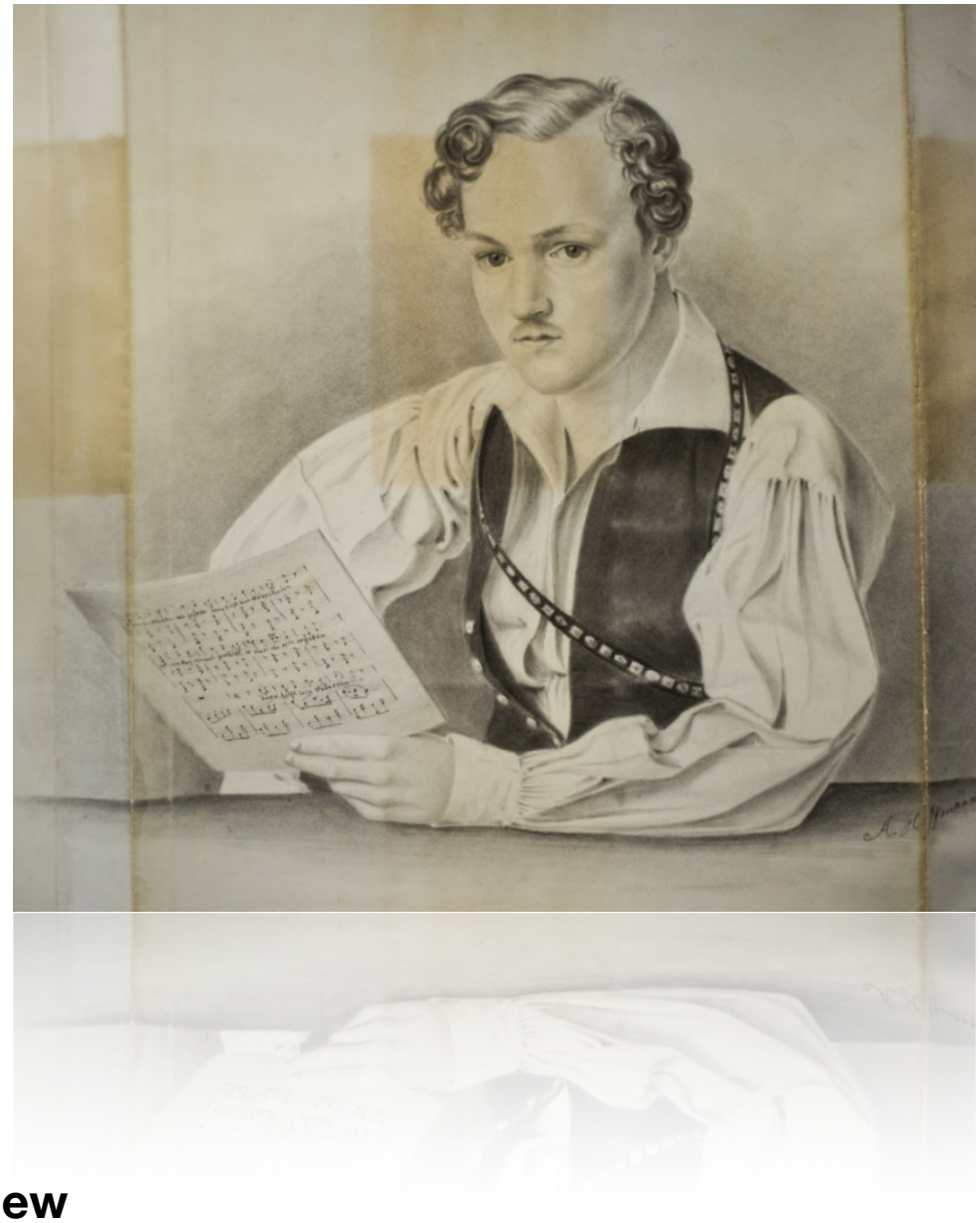
It took a fair amount of time to balance the levels of the sounds in the sound design and foley tracks, simply as there were so many — I used a total of 41 audio tracks to make up this part of the soundtrack. With the room noise and external blanket 'placement' sounds at a very low level in the mix, I started to blend the levels of all the other sounds by 'category', such that, for example, all footsteps were balanced within themselves and their role in the film; faster or louder instances of walking or running were mixed slightly higher than calmer or slower walking. Once I had a fair balance of the sound design and foley, I unmuted the music tracks to work on the overall soundtrack balance. I immediately found the guitar was very boomy and boxy in the context of the many other sounds so added an EQ to cut some low-mid and boost some high-mid energy. I added more of the low end saturation to the cello to boost its position in the mix in combination with the room tones, which are also mainly made up of low end energy.

With the music 'Bus' track and all the sound design and foley tracks going to the 'Stereo Out' channel, I mastered the full soundtrack by using a very small amount of 'mix glue' compression followed by a subtle low end boost, again with the Soundtoys *Decapitator* plugin. The last in the chain was iZotope's *Ozone 7* plugin providing subtle EQ balance, a

multi-band compressor, a touch of excitement, widening of the stereo width and finally a limiter that boosts the overall sound and ensures no digital peaking.

WOYZECK

Scenes 20, 21 and 23



Overview

Woyzeck is a theatrical play by Georg Büchner, left incomplete before he died in 1837 at the age of 23. This composition is for scenes 20, 21 and 23. (In the Greek translation, the same extract is in fact scenes 19, 20 and 21.)

Concept

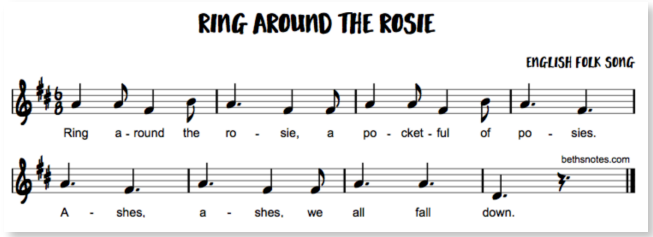
Upon reading the given extract of the play, I imagined where music might occur in these scenes if I were the composer/musical director working on a full staging of this play. I came up with concepts for three sections from within these scenes. As Margaret sings in the street at the start of 20, I decided I would compose a solo voice folksong to the text that the actor playing the part of Margaret would sing, which ends abruptly as Grandmother interrupts at, “in the air—”. Some lines later, Grandmother tells a story, for which I conceived the idea that the actor playing grandmother begins the story, on top of which there would enter a strange vocal recording of the text sung in a child’s voice, referencing typical children’s song melodies; the actor would quieten their speaking until they become silent as the recording takes over entirely. I planned for this to be a solo voice song but with some electronic textures in the background that represent the darkness of the theme in combination with a field recording of a children’s play area with lots of reverb — a combination that would sound eerie when coupled with the child-style voice. The final section would be drawn from material in scenes 21 and 23 and would occur after the murder of Marie. There is a moment in the text at the end of scene 23 where the journeymen’s conversation includes the following: “What a sound… The water calling… No-one’s been drowned for a long time. It’s bad luck to hear it… Like a death cry.” This inspired me to write a solo vocal song to be sung by Woyzeck as he mourns Marie by the waterside, with lyrics inspired by the text of the two scenes, and sung freely and produced in such a way that it sounds like a ‘death cry’ that is ‘calling’ from the water. With these three concepts for sections in place, it became apparent that my whole Woyzeck project would be a series of three solo songs that are accompanied by some subtle sonic textures, both musical and field recordings.

Composition & Production

To compose the folksong-style melody for Margaret’s song, I read the seven lines of text text and considered how the metre would best fit a musical rhythm. I composed a four-line verse that could be repeated for the second half and interrupted in line 7. I recorded myself singing the melody and sent it to a singing colleague, Kate Smith, with no musical transcription, for her to record it for this project. I avoided using a transcription so that when Ms Smith listened to my recording and learnt the piece, it would be reminiscent of the folk tradition of passing songs through generations that are taught by ear and not by

notation. Ms Smith sent me a recording of the verse that she made in Liverpool, UK and I mixed it in the context of the piece. I combined two field recordings to give a locational texture to the melody: a ‘country day’ and a ‘town’ sample; these sounds evoke a sense of an external location but without cars and such, just people and animals. I used a de-esser, two compressors and EQ on the track and sent it to a small amount of reverb and delay to help it gel with the external street sounds.

As the recording of Margaret’s verse finishes, the ‘country day’ and ‘town’ samples fade out and are replaced by a playground sample with a lot of reverb to create an eerie texture, in combination with a synth pad that adds sounds akin to a horror film background soundtrack, both sitting behind the child-style voice for this section. I referenced English children’s folk songs for the shape of the melody that I would perform for this text, including *Ring Around the Rosie*, a folksong that is said to originate from the time of the Great Plague of London, and that is said describe the plague, with children singing the song whilst holding hands in a circle and falling down as they sing, “We all fall down.” As this links to dark subject matter of the play but with a major melody, I felt it was a good starting point for this song given the nature of the text.



Based on extending this typical ‘so-mi-la’ children’s song composition convention, I recorded myself singing the text in a voice that aimed to sound childlike; I sang with a nasal quality high in my range, allowed the tempo to fluctuate and did not worry about consistent pitching. Having recorded this, I pitched the audio up by 3 semitones, including raising the formants proportionally and the recording successfully sounded as if a young boy had sung it. I used EQ and compression to enhance the sound and sent the track to the same reverb send that the playground sample goes to to help ‘place’ them in the same ‘space’. I also sent it to a doubler and a widener to enhance the stereo image of the recording and increase the width of the sonic space.

As this second song ends, again the background textures fade out and are replaced by those of the final song. I combined a ‘water lake’ sample with a ‘country night’ sample to set the scene for by the poolside. Shortly after the stage direction, “*They disappear into the pool. Silence.*” and before the entrance of the two journeymen is where I envisage this

song to be placed. Drawn from Woyzeck's conversation with the dead body of Marie in scene 23, I wrote the following lyrics to be sung by Woyzeck over the lake and country night samples:

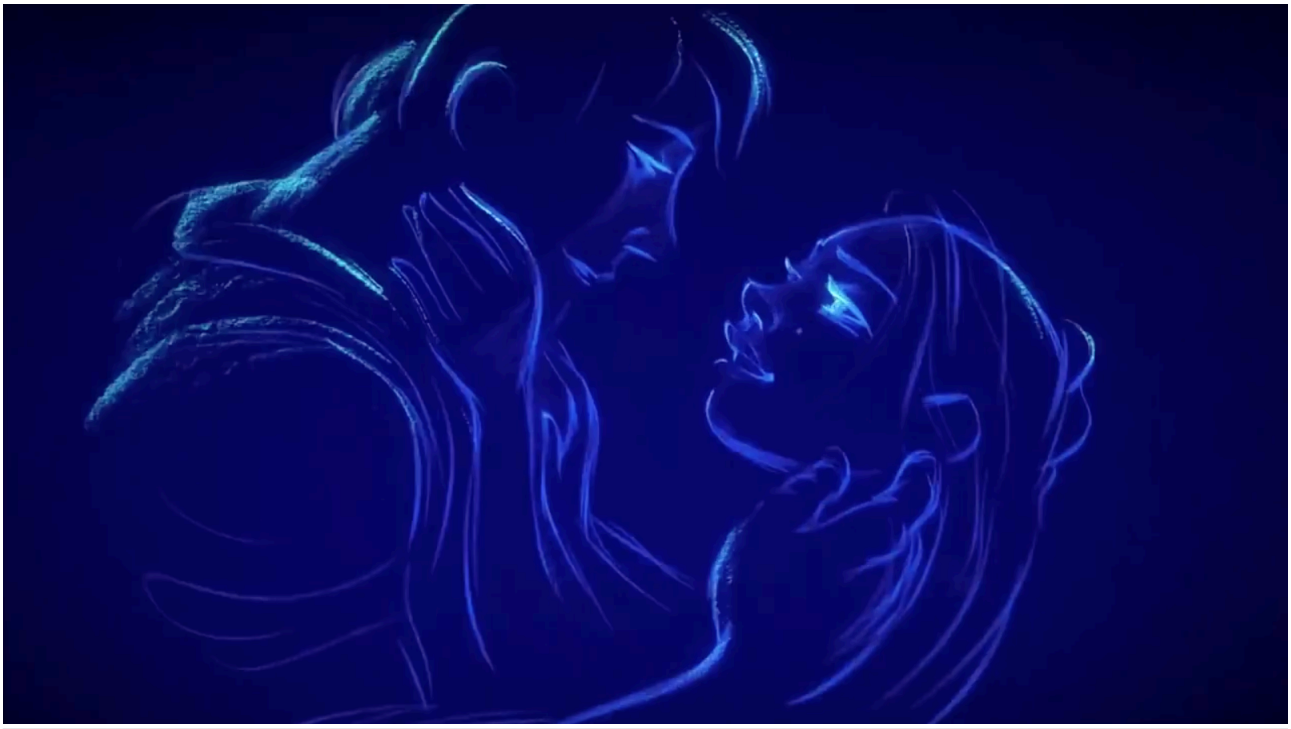
Black sins, white face, everywhere grey,
Bloodstains.
It's not far, to wash everything away.
There's even blood on the moon,
But you'll be clean, soon.
All the water in the world to wash you.
Water—

I recorded myself singing a melody in free time based on the C minor scale with a range of a minor 6th, placed in the octave that falls reasonably high in the tenor range. I placed the melody here to have a water-like quality to my own voice in the vocal recording. To help myself get 'into the zone' for this recording, I placed my Aston *Origin* condenser microphone in my home studio recording room with a high sensitivity, turned off the light, stood around 2 metres from the microphone and sang freely. For the last two lines to come through more powerfully I decided for them to be in solo, with the locational samples fading out during "There's even blood on the moon, But you'll be clean soon."

To produce the vocal recording for this section, I used compression and EQ, a de-esser, then a second instance of EQ and compression; the chain was designed to best enhance the voice without affecting the dynamic range. A small amount is sent to a stereo widener that feeds into a large reverb, a fair amount into a 'watery echo' that widens the signal and adds some wave-like fluctuation, and finally a small amount to a vocal plate reverb with some subtle saturation to thicken the overall sound. To increase the breathiness of the recording, I performed a parallel production technique whereby I duplicated the vocal recording track and put it through the 'Whisper' preset of the Waves *Morphoder* plugin, which makes the exact same vocal recording sound as if it was whispered. I placed this several decibels lower in the mix so it just blends with the voice slightly, the result adding some 'air' and a breath-like quality to the overall sound. I am pleased with the general outcome of this project, but this final section with Woyzeck's 'death cry' vocal 'calling from the water' is something of which I am very proud.

DUET

Composition for the animated short film



Overview

Duet is an animated film by Glen Keane, released in 2014, for which I composed, recorded and produced a new soundtrack.

Concept

Watching the film for the first time, I presumed an obvious compositional approach would be to write an orchestral score in neo-classical style, akin to many blockbuster ‘Hollywood’-style soundtracks of our day. Going against this convention, I was interested to compose a piece in an instrumental ‘post-rock’ style to experiment with whether this instrumentation and genre could bring to life this video contrary to the conventions of this cinematic genre. I aimed to use electric guitar as the main instrument with a wide and spacious tone with lots of reverb and delay to add to the fantastical and floating nature of the animation, in combination with some electronics to enhance and add new life and texture the general ‘rock band’ instrumentation.

Composition & Production

The instrumentation that makes up the ensemble for which I composed and orchestrated the piece is electric guitar, electric bass, piano, drum kit, percussion, effected electronic drum beat, string ensemble, synth pad and additional electronics. The composition process began with the guitar motif played in 10ths that we first hear when the title credit transforms into a single cell; it is from this motif that all the musical material is derived. Prior to the initial entry of this theme I used the synth pad, a high guitar chord and chimes to score the title sequence, giving a sense of floating in space. The pad and chimes in combination with the guitar both return for the closing sequence to round the composition off and make reference to where it started — floating in space. As the characters in the film become older children and start chasing each other and where the general pace of the animation increases, a second guitar-based theme is introduced, going through an unexpected series of harmonic modulations to inject new interest and tension in the piece that then leads us back to the original key. These themes are presented in different versions and with different orchestrations through the piece.

The guitar main theme comes in as the single cell appears from the stars, as it is from here that the characters and the story will emerge. The guitar was recorded DI and is processed through Native Instruments *Guitar Rig 5* with a compressor, an amplifier modeller, ‘psych’ delay, chorus and a stereo tape delay that together make up the wide and spacious guitar tone. The piano is first heard the moment the baby girl opens her eyes and looks at the camera, playing a repeated crotchet note to give a sense of

continual pulse to the otherwise spacey section. The piano is heavily saturated and has delay and pitch modulation to help it sit in the floating world of the animation. The first entry of the bass brings low energy to the mix as the baby first lands on the floor. The subtle string ensemble chords come in as we first see the dog character. There is a visual theme of the girl doing ballet leaps, occurring when she is a young girl, and later in the film when she is an adult and just before the final climactic 'kiss' moment. For this first instance of the leaping theme I made all instruments pause and hold their notes, adding some electronic production on the piano note combining stretching and reversing to create the swell back into her landing, where the other instruments come back in also.

Moving into the section from where the characters are young children, they start running and chasing each other so I brought in the first instance of a percussive sound in the filtered and effected electronic beat that helps to pick up the pace of the music. As mentioned, this is the first moment we hear the second harmonic motif. The action calms as the two protagonists make eye contact from adjacent trees, for which the texture of the orchestration thins out. To aid the impact of the following scene where the girl, now a teenager, jumps in a pirouette into the water, we hear the first entry of the drum kit playing a powerful rock beat. To add energy, this section uses the second motif with more tension in the harmony. Some electronic sounds combine with percussion to enhance the splashes of the water and the movement of the shoal of fish. Again, as the teenagers meet in the park and appear to fall in love, the pace of the film slows for a period, and as such I returned to another iteration of the first theme, with the drums grooving softly on the floor tom, and removing the piano and strings from the mix. The adult woman then performs her second ballet leap where again everything pauses to bring us to the climax of the piece.

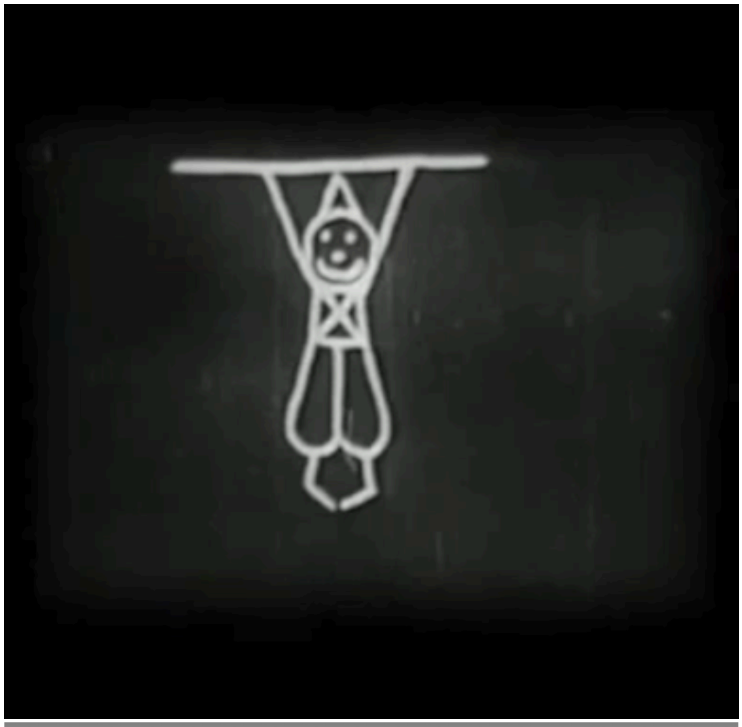
To introduce in the climactic section, the filtered and effected beat sonically opens up and the drum kit drives on the crash cymbal to increase the energy; the cymbal also sounds water-like to fit with the images of the waterfall as the boy and the dog climb. As the woman spins her numerous pirouettes, we hear the final iteration of the second theme, this time with all instruments in the arrangement playing and at their full dynamic level. The final chord of this motif lands and is held on the moment the couple kiss, the moment the whole film has been moving towards. At this point, the drums finish on a cymbal hit and the composition begins to draw to a close. As they stand in each other's arms and begin to float away into space, we hear the closing iteration of the main guitar motif,

coupled again with the synth pad and chimes as the less urgent electronic beat fades and filters out.

To prepare the soundtrack for presentation, I mixed the recording from the starting point of the electric guitar tone that I had created. I brought in the bass and drums, using compression and EQ where necessary to control and blend the sounds together. The piano fell nicely into this balance with its sound sculptured as previously described, clearly cutting through the spacious guitar tone. The string ensemble is barely audible in the mix as a standard string ensemble, it simply serves to double the harmonic patterns in the guitar themes and to thicken the texture of the overall orchestration. I processed the ‘Stereo Out’ channel with some subtle ‘Mix Glue’ compression leading into iZotope’s *Ozone 7* plugin, in which I boosted some high-mid EQ, enhanced the stereo width of the mix, subtly controlled the overall dynamics with a multi-band compressor before boosting the overall signal with the limiter that would also not allow any clipping as its output ceiling was set at -0.3db. I enjoyed experimenting with this ‘post-rock’ style of composition for *Duet* and feel on reflection that it is a perfectly appropriate way of scoring a film such as this, and just as valid a route to take as the more conventional neo-classical orchestral score.

FANTASMAGORIE

Composition for the 1908 hand-drawn animation



Overview

Released in 1908, *Fantasmagorie* is an animated film by Émile Cohl that is one of the earliest examples of hand-drawn animation, for which I produced a new soundtrack.

Concept

As I was composing and producing a new soundtrack for a short animated film over 100 years after its initial production and release, I felt it would be interesting to explore how a contemporary sounding electronic composition would fit with the given images. The pace of the animation is high; would it be possible to bring this to life with a high tempo electronic soundtrack with many contemporary electronic effects? The compositional structuring behind the piece was to create an electronic ‘glitch’ beat at a high tempo and copy the MIDI data of this track to three pitched percussion software instruments: marimba, xylophone and glockenspiel. The MIDI ‘pitch’ information used for the different drum sounds on a MIDI drum kit are in no key, each note simply triggers a sample for the given drum sound; I anticipated this would create a fast paced ‘melody’ with a lack of tonal centre that would be interesting when played by the short, sharp and ‘pointy’ percussive sounds from the chosen instruments. The original glitch beat would also be present in the arrangement, meaning that all the parts would sync perfectly as they are derived from the same source material. I intended to apply several effects to each track that I would assign to knobs on my MIDI controller keyboard and ‘play’ and record the effects live as I watched the animation in real time. As the piece develops the pitch of the MIDI information in the tuned percussion tracks would increase by a semitone every 4 bars to increase the energy of the journey of the animation as it moves towards its end.

Composition & Production

The material from which the whole composition would be derived was contained in the ‘glitch’-style electronic drum beat, so naturally this was the starting point of my work on this piece. Using *Ableton Live Suite* I selected an electronic ‘Glitch Kit’ in which the processed drum samples suited the soundworld I had in mind for the piece and I proceeded to programme a 4-bar loop at 157 BPM, a tempo that suited the fast pace of the animation. With the stereo drum beat panned in the centre, I brought in the three software instruments and moved them around the stereo field to enhance the stereo width of the composition: the marimba remained in the centre, the xylophone halfway to the left, and the glockenspiel halfway to the right, opposing the xylophone.

I copied the MIDI material from the electronic beat track and pasted it on the three tracks; I was pleased to hear the effect I had imagined of a fast and ‘pointy’ atonal melody. I

formed the piece such that the marimba enters first, later the xylophone, followed by the glitch beat and lastly the xylophone. Every 4 bars, I transposed the MIDI data up a semitone in the three pitched percussion tracks as planned. Interestingly, some of the notes in the drum loop pattern are out of range on these pitched percussion instruments, which means not all the notes are initially present; at a certain point, as we move up in semitones, the notes become available, changing the composition in an interesting and unexpected way. Of course, I could have chosen to transpose the out of range notes to a playable range, but I found pleasing the effect of these notes missing and entering the arrangement later following several transpositions.

In order to 'play' live the altering of the effect plugins' parameters and to record the outcome, I set up MIDI mapping on my MIDI controller keyboard such that certain knobs or faders would apply to certain effects parameters. On all four channels in the mix I placed a high-pass filter and a saturation plugin and mapped the frequency of the filter and the amount of drive in the saturation plugin to a knob. I also set up two return tracks, one with a filter delay in sync with the tempo of the track and the other with a large sized reverb, and on each of the instrument channels I mapped the 'send' knob to a knob on my keyboard, meaning turning this up at any point would send this track's signal to the reverb or delay until the 'send' knob is turned down again.

I made several passes of the piece, working with one instrument at a time to watch the animation in real time and alter the given parameters in response to what I was seeing on the screen; I sent short snippets to reverb and delay, increased and reduced the drive in saturation and brought the low end in and out using the low-pass filter. Pressing the record button in the transport bar means *Ableton* 'records' these 'performances' and draws the automation curves for any changes made such that my 'performance' can be played back exactly how it was heard live. After the several passes to work on the three pitched percussion instruments and the glitch beat track, I reviewed the composition and was very pleased with the result. The result of the changes in the effects that sync in time with the various events in the film maintain the interest as the composition develops, and the increase by a semitone of the pitched material continues to intensify the energy as the piece leads to its closure.