Overview

The Far and Brilliant Night in its current version consists of three primary parts: synthesis and sound processing controlled by a Buchla Lightning performer, a 2-channel tape part, and performed multi-image slides. In addition, a third performer is needed to make adjustments to some delay-based effects, and perform some whispering into a mic.

The software used is called Ensemble, which runs under NEXTSTEP and does MIDI processing and sound file triggering. Ensemble is document-oriented, where a document represents a certain configuration of MIDI-processing routines, compositional algorithms, and sound samples. MIDI output from Ensemble is used to control a Yamaha TG77 synthesizer, and Lexicon PCM70 and LXP-5 signal processors.

The work can be thought of as having six parts. There is one Lightning preset and one Ensemble document for each part. The Lightning foot pedal is used to sequentially step through each part, sending a Program Change command to a Lexicon MRC controller, which in turn sends corresponding program change commands to the NeXT and the other devices.

Five of the six parts are similar, in that the Lightning is used primarily to adjust the parameters of a fractal melody algorithm. This algorithm generates MIDI control data which adjusts a resonant comb filter program on the PCM70. The filter program filters sampled and live sounds which are predominantly noisy, giving them a pitched quality.

The fifth part, in contrast, has the Lightning act more as a percussion instrument. Zone entries performed by the right hand trigger a custom velocity-sensitive instrument which sounds like a bowed cymbal with a long decay. The left hand affects pitchbend and pan on the decay of the notes. Downward strikes by both hands across all zones horizontally trigger a sharp metallic sound referred to as the "Giant Glock", also velocity-sensitive.

Three Ektagraphic slide projectors are used to project slides onto a common large screen. A MIDI fader box (such as the JL Cooper FaderMaster or a second Lexicon MRC) is used to control the cross-fading of the projectors, via a special MIDI-controlled slide projector controller (provided by the composer). The slides are sequenced in advance, and each projector automatically advances each time its lamp is faded to black. The performer improvises visual mixes of the 3 images. There is a subset of slides designed to go with each of the six parts, so the projectors need simply be advanced at an average rate which causes the subsets to appear at the right times.

Part 1

Part 1 begins with the sound of fire, which gradually becomes processed into a low rumble. Press and hold the right wand button to trigger a sound file of wind sound and run the fractal algorithms. The right hand then improvises sweeps up and down to control the overall pitch level, and side to side to vary the amount of filtering (from very pitched to plain wind sound). The left wand vertical motion affects overall volume, and the horizontal motion affects the relative levels of the two resonant filters which are heard on the left and right channels of the PCM70 (resulting in a kind of panning). The sound file is sized to end on its own before Part 2, but may be terminated by lifting up the right wand button, or restarted by pressing the button again. During approximately the first 30 seconds, some occasional gentle whispering from the MRC performer is mixed in with the wind sound and processed.

The sound of ravens getting closer indicate the approach of Part 2. After the third raven call, press the foot pedal to change the setup to Part 2. The final raven sounds consists of two calls, with pitch shifting. These calls are the first two beats of a three beat sequence. On the third beat, Part 2 starts.

Part 2

Part 2 is only 8 seconds long, and consists of the filtering of a recording a a 1.5 million volt Tesla Coil being discharged. The left and right wands control the same parameters as before, except that the right hand horizontal movement only affects low-pass filtering, and the left wand vertical movement only affects note rate. The volume and amount of resonance is fixed at a high level. The right hand should start out high, move down to the bottom, and return to the top of the zone before the sound cuts off (refer to demo tape).

As soon as the sound cuts off, press the foot pedal to set up Part 3.

Part 3

The Part 3 main sound is that of a recording of a stream. Again, the sound and fractals are triggered by pressing and holding the right hand button and processed in the same fashion as the wind sound in part one.

In addition, there are four sound samples triggered by right-hand strikes to the left in Zone R. Each starts out like a tam-tam, changing gradually into a processed combination of sounds. They are triggered by four strikes from low to high in sequence.

Except when performing the strikes, the right wand should be held far out to the right to avoid too much filtering of these sounds. The left hand should adjust the pan and level. In between strikes, as the sounds trail off and the water is heard again, move the right hand in to add more filtering effect (this is not obvious on the demo tape).

Part 3 ends with the processed sound of a cougar. After the cougar is heard, press the foot pedal to set up part 4. As soon as the cougar cuts off, Part 4 starts.

Part 4

Part 4 is only 16 seconds long, and also consists of the filtering of a recording a a 1.5 million volt Tesla Coil being discharged. The left and right wands control the same parameters as Part 2. There are 2 pitch patterns, which alternate automatically (6" - 3.7" - 6.3"). The right hand should start out low, reach the top just as the second pitch pattern is heard, return to the bottom as the first pitch pattern returns, then move back toward the top (refer to demo tape).

As soon as the sound cuts off, press the foot pedal to set up Part 5.

Part 5

In part 5, the Lightning controls two synthesis instruments on the TG77. There is no live signal processing.

The first instrument is a patch consisting of two components, a cymbal sample and an FM voice with both harmonic and inharmonic overtones. It is referred to as the "Bowed Cymbal". Notes are generated by sweeping the right wand horizontally through Zone C (the two middle zones), in either direction, while the right wand button is down. Note that zone entries are the trigger, so you have to start the motion from outside the zone. The patch is very velocity-sensitive, with faster sweeps producing louder, richer sounds and faster attacks. Also, loud notes are more consistently produced if you start the sweep far outside the center zone. Higher sweeps produce higher pitches, and vice versa. This sound is actually composed of two separate voices on the TG77, so that the cymbal sample may respond to pitchbend and pan while the FM component does not. In performance, the right hand generates the notes, after which the left hand pans and pitchbends the cymbal's decay, and the right hand pans the FM component.(refer to tape). The cymbal contains a bit of slow pitch oscillation of its own, but the Lightning generates considerably more pitch change. In performance, vary the panning effect: sometimes sweep both hands in the same direction together, and sometimes cross them to cause the components to pan in opposite directions, etc. Again, the right wand button must be down to generate Bowed Cymbal notes and to pan and pitchbend them. The left button is used in this preset to change tunings (see below).

The second instrument is also a sample/FM hybrid, using a glockenspiel attack with additional FM components similar to an Indonesian gender. It is referred to here as the "Giant Glock". The instrument is played across the full Lightning horizontal zone in the manner of a vibraphone. Part 5 is rhythmic, and since this instrument has a very sharp attack and the note-ons must travel through Ensemble to be mapped, there can be a delay, so the instrument must be played with some anticipation in order to get the attacks on the beat (you can hear the problem on the demo tape, where we hadn't yet gotten it down - hopefully you can be more precise with practice).

Eight pitch modes are used in part 5, in sequence. They are set up by note mapping filters in Ensemble. They are selected by aiming the left wand at one of the eight zones and pushing the left wand button. N.B.: The right wand button must also be held down while the left button is pressed. Part 5 is built over a slow, steady rhythm, and each mode lasts for a certain number of beats, which should be counted (although you can easily hear when they change, if you lose count), at a tempo of quarter note = 78. See the Lightning performance chart for zone and button assignments. The modes are selected in the numeric order seen in the diagram.

Part 5 builds up slowly over a 5 minute long crescendo. At the beginning, only the Bowed Cymbal is heard. Gradually the Giant Glock is introduced, at first with only single quiet notes. It is even possible to sound both the Bowed Cymbal and Giant Glock at the same time, by using diagonal strokes. Eventually, the Bowed Cymbal is abandoned and the Giant Glock goes full metal, building in intensity with the percussion. (again, try to stay as rhythmically precise as you can).

The end of Part 5 is signaled by a distinctive drum pattern in the last 4-beat measure. It then cuts off abruptly and immediately transitions into the 3/4 time part 6 (press foot pedal).

Part 6

Part six is essentially the same setup as Part 1, except that only live whispering from the MRC performer is used as the processed sound source. A high-pass filter at about 100 Hz should be applied to the microphone so that breath rumble will not be heard.   A wind screen also helps. The right wand button simply starts and stops the fractals, and the left wand button enables the left wand functions of pan and volume. The whispering should be frequent, and sometimes intelligible, sometimes not. When the tape part finally fades out, the whispering performer ends the work with a long sigh, slowly inhaling, then slowly exhaling. Full resonance and delay effect processing should be applied to the sigh.

Performance of Delay Processing (MRC + LXP5)

Before the performance, the MRC should be set to "MACH #4 GMIDI Setup 9", and Enter pressed. You should see the labels "PTCH DLY FDBK LVL" for the four sliders. The sliders affect the pitch shift, delay, feedback, and level of an LXP-5 program. During the performance, these sliders are adjusted by a second performer differently for each part of the piece. The LXP-5 program is stored in the MRC and downloaded when the MRC receives program change 9, which is sent by the Lightning when Preset #1 is selected by pressing the Lightning foot pedal.

Here are the appropriate ranges of each slider for each preset. The MRC performer should improvise adjustments to the sliders within these ranges during each preset.

Part:	PTCH:	DLY:	FDBK:	LVL:
1	60-68	64-127	40-80	90
2	64-74	70-90	60-80	100
3	60-68	50-90	80-90	40-70 (lower during gong sounds)
4	50-80	70-90	60-80	100
5	--	--	--	0
6	50-75	64-127	50-120	100

Buchla Lightning Patches

Preset 1:

Patch:	Zone:	Stim:	Object:	Data:	Chan:	Modifies:	Audible Effect:
1	x x - - x x - -	L[∗]	Con:7	L^ : AN	Ch:2	PCM70 Efx Adj	Wind volume
2	x x - - x x - -	L[∗]	Con:15	L> : AN	Ch:1	Fractal rates	Wind note rate
3	- - x x - - x x	R[∗]	Con:11	R> : AN	Ch:2	PCM70 Resonance & Lowpass	Wind resonance filtering
4	- - x x - - x x	R[∗]	Con:17	R^ : AN	Ch:1	Fractal pitch base	Wind note pitch base
5	x x x x x x x x	R↓	Nt:+2	Rl:	Ch:3	Audio & Fractal on/off	Wind & notes start/stop
6	x x x x x x x x	L↓	Nt:+1	Rl:	Ch:4	Note set advance	Wind note harmony
7	x x x x x x x x	F↓	System: SetPreset: 2			Advance to next preset	

Tuning 1: Custom B: 2 0 1 3 4
Tuning 2: Custom B: 127 0

Notes: Foot Pedal: Lightning I assumes normally-open foot pedal – reverse down/up settings if using normally-closed pedal

Stimuli:
L[*] **=** left wand zone entry
R[*] **=** right wand zone entry
L↓   = left button down
R↓   = right button down

↓
L_   = left button up

↓
R_   = right button up

F↓   = foot pedal down

↓
F_   = foot pedal up

L<, L\/, L>, L^ = strikes

Preset 2:

Patch:	Zone:	Stim:	Object:	Data:	Chan:	Modifies:	Audible Effect:
	x x - -						
1	x x - -	L[∗]	Con:15	L> : AN	Ch:1	Fractal rates	Wind note rate
	- - x x					PCM70 Resonance	
2	- - x x	R[∗]	Con:11	R> : AN	Ch:2	& Lowpass	Wind resonance filtering
	x x x x						
3	x x x x	R[∗]	Con:17	R^ : AN	Ch:1	Fractal pitch base	Wind note pitch base
	x x x x						
4	x x x x	L[∗]	Con:7	L^ : AN	Ch:2	PCM70 Efx Adj	Wind volume
	x x x x						
5	x x x x	R↓	Nt:+2	Rl:	Ch:3	Audio & Fractal on/off	Wind & notes start/stop
	x x x x						
6	x x x x	F↓	System: SetPreset: 3			Advance to next preset	

Tuning 2: Custom B: 127 0

Notes: Foot Pedal: Lightning I assumes normally-open foot pedal – reverse down/up settings if using normally-closed pedal

Preset 3:

Patch:	Zone:	Stim:	Object:	Data:	Chan:	Modifies:	Audible Effect:
	x x - -						
1	x x - -	L[*]	Con:15	L> : AN	Ch:1	PCM70 Pan	Gong Pan
	- - x x					PCM70 Resonance	
2	- - x x	R[*]	Con:11	R> : AN	Ch:2	& Lowpass	Pitch effect on gongs
	x x x x						
3	x x x x	R<	Nt^3	Rl:L↓	Ch:4	SndFiles index	Gongs
	x x x x						
4	x x x x	R[*]	Con:17	R^ : AN	Ch:1	Fractal pitch base	Pitch effect pitch base
	x x x x					Extra reverb &	
5	x x x x	L[*]	Con:7	L^ : AN	Ch:2	PCM70 Efx Adj	Gong distance
	x x x x						
6	x x x x	L↓	Con:64	Val:0	Ch:4	Sustain off	Gongs damped
	x x x x	↓					
7	x x x x	F_	Con:81	Val:127	Ch:3	Fractals on	Pitch effect start
	x x x x	↓					
8	x x x x	L_	Con:64	Val:127	Ch:4	Sustain on	Gongs sustained
	x x x x						
9	x x x x	F↓	Con:81	Val:0	Ch:3	Fractals off	Pitch effect stop
	x x x x						
10	x x x x	F↓	System: SetPreset: 4			Advance to next preset	

Notes: Foot Pedal: Lightning I assumes normally-open foot pedal – reverse down/up settings if using normally-closed pedal

Preset 4:

Patch:	Zone:	Stim:	Object:	Data:	Chan:	Modifies:	Audible Effect:
	x x - -						
1	x x - -	L[∗]	Con:15	L> : AN	Ch:1	Fractal rates	Wind note rate
	- - x x					PCM70 Resonance	
2	- - x x	R[∗]	Con:11	R> : AN	Ch:2	& Lowpass	Wind resonance filtering
	x x x x						
3	x x x x	R[∗]	Con:17	R^ : AN	Ch:1	Fractal pitch base	Wind note pitch base
	x x x x						
4	x x x x	L[∗]	Con:7	L^ : AN	Ch:2	PCM70 Efx Adj	Wind volume
	x x x x						
5	x x x x	R↓	Nt:+2	Rl:	Ch:3	Audio & Fractal on/off	Wind & notes start/stop
	x x x x						
6	x x x x	L↓	Nt:+1	Rl:	Ch:4	Note set advance	Harmony change
	x x x x	↓					
7	x x x x	F_	Nt:0	Rl:	Ch:4	Select note set 0	First harmony
	x x x x						
8	x x x x	F↓	System: SetPreset: 5			Advance to next preset	

Tuning 1: Custom B: 0 1 2

Tuning 2: Custom B: 127 0

Notes: Foot Pedal: Lightning I assumes normally-open foot pedal – reverse down/up settings if using normally-closed pedal

Preset 5:

Patch:	Zone:	Stim:	Object:	Data:	Chan:	Modifies:	Audible Effect:
	- - x -						
1	- - x -	R[*]	Nt:^2	Rl:L↓ Tr:Off	Ch:2	Ch. 2 Note On	"Bowed Cymbal" sounds
	x x x x						
2	x x x x	Rv	Nt:>1	Rl:L↓ Tr:Off	Ch:1	Ch. 1 Note On	"Giant Glock" sounds
	x x x x						
3	x x x x	Lv	Nt:>1	Rl:L↓ Tr:Off	Ch:1	Ch. 1 Note On	"Giant Glock" sounds
	x x x x						
4	x x x x	R↓	Con:PW	Val: L^:NN	Ch:4	pitchbend	Bowed Cym. noise pitch
	x x x x						
5	x x x x	R↓	Con:10*	Val: R>:AN	Ch:5	pan	Bowed Cym. pitch pan
	x x - -						
6	x x - -	R↓	Con:10*	Val: L>:AN	Ch:4	pan	Bowed Cym. noise pan
	x x x x						
7	x x x x	R↓	Con:82	Val: 127	Ch:3	input enable	Enable Bowed Cym.
	x x x x						
8	x x x x	L↓	Con:T1	Val: L>:AN	Ch:1	chime notes	glock glissandos
	x x x x	↓					
9	x x x x	F_	Con:84	Val: 127	Ch:3	timer play button	Start note set timing
	x x x x	↓					
10	x x x x	F_	Con:83	Val: 78	Ch:3	tempo	note set timing tempo
	x x x x	↓					
11	x x x x	R_	Con:82	Val: 0	Ch:3	timer play button	Stop note set timing
	x x x x						
12	x x x x	F↓	Con:84	Val: 0	Ch:3	timer play button	Start note set timing
	x x x x						
13	x x x x	F↓	Con:83	Val: 60	Ch:3	tempo	timing tempo reset
	x x x x						
14	x x x x	F↓	System: SetPreset:6				Advance to next preset

Tuning: 1   Low: 36   Hi: 60   Scale:Chromatic

Tuning: 2   Low: 31   Hi: 47   Scale:Custom A (all notes enabled between Low and Hi)
                                                            (chromatic scales are buggy below 32 on my Lightning)

Notes: Foot Pedal: Lightning I assumes normally-open foot pedal – reverse down/up settings if using normally-closed pedal

Preset 6:

Patch:	Zone:	Stim:	Object:	Data:	Chan:	Modifies:	Audible Effect:
	x x - -						
1	x x - -	L[*]	Con:15	L> : AN	Ch:1	Fractal rates	Wind note rate
	- - x x					PCM70 Resonance	
2	- - x x	R[*]	Con:11	R> : AN	Ch:2	& Lowpass	Wind resonance filtering
	x x x x						
3	x x x x	R[*]	Con:17	R^ : AN	Ch:1	Fractal pitch base	Wind note pitch base
	x x x x						
4	x x x x	L[*]	Con:7	L^ : AN	Ch:2	PCM70 Efx Adj	Wind volume
	x x x x						
5	x x x x	L↓	Nt:+1	Rl:	Ch:1	Note set advance	Wind note harmony
	x x x x	↓					
6	x x x x	F_	Con:81	Val: 127	Ch:3	Fractals start	Melodies start
	x x x x						
7	x x x x	F↓	Con:81	Val: 0	Ch:3	Fractals stop	Melodies stop
	x x x x						
7	x x x x	F↓	System: SetPreset: 2			Advance to next preset	

Notes: Foot Pedal: Lightning I assumes normally-open foot pedal – reverse down/up settings if using normally-closed pedal

Lexicon PCM70 Patches

I.

3.0 FAR 1 RES 3V

Patch	Con	Param	Scale	Value	(min input)
6.0	7	1.0 Efx Adj	35	−35	0
6.1	11	3.0 Res Mstr	100	56	0
6.2	11	0.5 Hi Cut L	−6	15.0	0
6.3	12	2.1 V1 Pitch	128	<Db1	0
6.4	13	2.2 V2 Pitch	128	<Db1	0
6.5	14	2.3 V3 Pitch	128	<Db1	0
6.6	12	5.1 V1 Pan	128	37 L	25 (min useable note)
6.7	13	5.2 V2 Pan	128	37 L	25
6.8	14	5.3 V3 Pan	128	37 L	25

3.1 FAR 2 RES 3V

Patch	Con	Param	Scale	Value	(min input)
6.0	7	1.0 Efx Adj	41	−26	0
6.1	11	3.0 Res Mstr	10	90	0
6.2	11	0.5 Hi Cut L	15	6.27	0
6.3	12	2.1 V1 Pitch	128	<Db1	0
6.4	13	2.2 V2 Pitch	128	<Db1	0
6.5	14	2.3 V3 Pitch	128	<Db1	0
6.6	12	5.1 V1 Pan	128	37 L	25 (min useable note)

(other pans fixed L & R)

3.3 FAR 3 RES 3V

Patch	Con	Param	Scale	Value	(min input)
6.0	7	0.1 Efx Adj	15	−12	0
6.1	11	3.0 Res Mstr	−109	0	0
6.2	7	0.5 Hi Cut L	24	3.1	0
6.3	12	2.1 V1 Pitch	128	<Db1	0
6.4	13	2.2 V2 Pitch	128	<Db1	0
6.5	14	2.3 V3 Pitch	128	<Db1	0
6.6	15	5.0 Pan Mstr	101	−50	0

CHECKLIST FOR FAR AND BRILLIANT NIGHT

NeXT: Docs   LAUNCHED
                     Buffers   RESPONSIVE

LXP-1 front panel settings (0 - 6):   1.0   6   5

LXP-5 front panel settings (0 - 6)   1.5   6   5

PCM70 level   5.5
PCM70 back panel gains   +4 +4

TG77 output level   8

DAT   Far and Brilliant Night tape   LOAD

Mixer: NeXT Headphone   OFF
                 Sliders   UNITY (exc. MIC:OFF, NeXTHP:OFF TX81Z:OFF)
        NeXT Line Pan   FULL LEFT
                 Back gain knobs   9:00 o'clock, except all NeXT = 9:30, MIC = FULL
                 MIC   MUTE ON
                 Mic Pan   FULL LEFT
                 NeXT LineOuts   MUTE ON
                 AUX 2 out (reverb) 12:00, except NeXT Line = off & MIC = OFF
                 AUX 2 Return   2:00, or less depending on hall acoustics.
                 AUX 4 out (LXP-5) OFF, except PCM70 = 1:00
                 Phantom power   ON

FaderMaster:
     All faders full up

MRC:
     MIDI Input 1   LIGHTNING MIDI CABLE
     Machine 4, Setup 9   ENTER

Lightning:
     Program Changes   CYCLE THROUGH TO #1
     Operation   TEST WITH HEADPHONES

PitchRider   OFF

System   TEST WITH HEADPHONES