ZODIAC PORTRAITS 1-3

Compositional notes



Contemporary music by Finn Endries

Composition Notes

This piece is a collection of three sonic portraits, each attempting to capture the essence, or caricature of whom the portrait is seeking to portray. The piece is written in an extended moment form, where the three portraits each present a moment unrelated to the others.

This premise was built upon the foundation of its tuning system. The octave was divided into 13, for the 13 astronomical zodiac constellations the sun moves through in a year. Unlike it's astrological counterpart, the sun spends a varied number of days in each sign. The transitions from one sign to the next were mapped out against the span of a year, and these points became the notes within the octave.

	Days the sun spends moving through sign	Day the sign begins	Ratio of pitch measured against root octave	Cents
Capricorn (P1)*	28	0/365	1	0
Aquarius (P2)	24	28/365	1.0767123	127.96
Pisces (P3)	38	52/365	1.1424658	230.58
Aries (P4)	25	90/365	1.2465753	381.56
Taurus (P5)	37	115/365	1.3160685	474.17
Gemini (P6)	31	152/365	1.4164384	602.72
Cancer (P7)	20	183/365	1.5013699	703.59
Leo (P8)	37	203/365	1.5561644	765.59
Virgo (P9)	45	240/365	1.6575342	874.85
Libra (P10)	23	285/365	1.7808219	999.65
Scorpio (P11)	7	308/365	1.8458356	1061.13
Ophiuchus (P12)	18	315/365	1.8630157	1077.17
Sagittarius (P13)	32	333/365	1.9123288	1122.40

*P stands for pitch.

Once this tuning system was established, tonalities were chosen within this system based on the natal charts (the position of the solar planets relative to the zodiac constellations at ones birth) of the 3 candidates whose portraits were taken.

The position of the Sun, Moon, and solar planets from Mercury to Saturn at the time of the candidates birth will decide which notes are available to use within the portrait. Whichever constellation the planet is in becomes an available note to use (across any octave). However, the astrological position of the planets does not accurately represent its astronomical zodiac counterpart, therefor a graph has been made to convert the data.

	Astronomical position	Astrological position
Capricorn	0°-30°	0°-27°
Aquarius	30°-60°	27°-51°
Pisces	60°-90°	51°-88°
Aries	90°-120°	88°-113°
Taurus	120°-150°	113°-150°
Gemini	150°-180°	150°-180°
Cancer	180°-210°	180°-200°
Leo	210°-240°	200°-236°
Virgo	240°-270°	236°-281°
Libra	270°-300°	281°-303°
Scorpio	300°-330°	303°-310°
Ophiuchus		310°-328°
Sagittarius	330°-360°	328°-360

At this point in the compositional process, the natal charts of candidates were converted to portray data useful for the composition. This is listed as such:

Candidate 1	Position	Constellation	Pitch	House
Sun	20°	Capricorn	P1	8th
Moon	118°	Taurus	P5	11th
Mercury	22°	Capricorn	P1	8th
Venus	333°	Sagitarius	P13	6th
Mars	326°	Ophiuchus	P12	6th
Jupiter	235°	Leo	P8	3rd
Saturn	173°	Gemini	P6	1st
Ascendant horizon	156°	Gemini		
Tonality			P 1,5,6,8,12,13	

Candidate 2	Position	Constellation	Pitch	House
Sun	310°	Scorpio	P11	7th
Moon	289°	Libra	P10	6th

Candidate 2	Position	Constellation	Pitch	House
Mercury	303°	Scorpio	P11	7th
Venus	306°	Scorpio	P11	7th
Mars	281°	Libra	P10	6th
Jupiter	236°	Leo	P8	4th
Saturn	178°	Gemini	P6	2st
Ascendant horizon	121°	Taurus		
Tonality			P 6,8,10,11	

Candidate 3	Position	Constellation	Pitch	House
Sun	221°	Leo	P8	10th
Moon	294°	Libra	P10	12th
Mercury	246°	Virgo	P9	11th
Venus	217°	Leo	P8	10th
Mars	69°	Pisces	P3	5th
Jupiter	235°	Leo	P8	11th
Saturn	187°	Cancer	P7	9st
Ascendant horizon	311°	Scorpio (Ophiuchus)		
Tonality			P 3,7,8,9,10	

Thus far, two major algorithms have come into play - the first being the suns position relative to the zodiac constellations, creating the tuning system, and the second the position of planets at a candidates birth, informing the tonality. Both of these algorithms present a set of rules that were followed without deviation.

Further algorithms were used in this composition, however, these were designed to be less rigid and open to deviation.

Just as the two aforementioned algorithms represent astronomy in their use of exact measurements and readings, the next algorithm represents astrology. It was specifically designed to be subjective and vague, to act as a rough guideline rather than a set of rules.

The composition features seven melodic voices, and each of these were assigned a planet (Sun, Moon, Mercury, Venus, Mars, Jupiter, Saturn). These voices were each given compositional prompts or guide lines (for the length of a portrait) depending on which house they fall under. The term “house” in astrology refers to which aspect of the candidate’s life the planet will affect, and is calculated by the position of the rising, or the ascendant horizon, at the time of the candidate’s birth. The following table provides insight into how this was realised within the composition.

	Aspect	Portrait 1	Portrait 2	Portrait 3
1st	Self image, presentation	Saturn - main melody line, focal point		
2nd	Personal resources, security & identity		Saturn - contrast between restrained use of notes and maximal use of notes	
3rd	Inner reality, everyday life, familiar patterns	Jupiter - interplay with Saturn, accompanying line		
4th	Home life, past		Jupiter - reference lines previously used by other instruments	Mars - reference lines previously used by other instruments
5th	Creativity, pleasure			
6th	Order & routine	Mars & Venus - Repeated line, ostinato like	Moon & Mars - ostinatos	
7th	Close relations, how to express oneself through others		Sun, Mercury & Venus - used as an instrumental section or unit.	
8th	Transformation, loss of control, adapting	Sun & Mercury - instigating transitions; flowing		Saturn - reacting to other instruments
9th	Knowledge, learning			Venus - “learning” the the tonality, eg. starting with a single note and gradually expanding
10th	Goals, legacy			Sun, Mercury & Jupiter - used as a section to present motivic lines.
11th	Shared goals, idealism	Moon - used as a glue, holding this together		
12th	Dreams, fantasies			Moon - drone

These houses also decided which musical direction the portrait would be taken in. For example, candidate 1’s would be constantly changing and adapting, candidate 2’s focused on contrast between order and disarray, and candidate 3’s on motivic ideas and memorability.

Percussion

The last algorithm used within the composition was used in the context of percussion. Each candidate was assigned an audio file, specifically chosen to suite their portrait. Using Logic Pro’s *replace or double drum track* function, transients were detected within the audio file and placed onto a seperate midi track, where they were then able to trigger electronic drum samples. The electronic samples play standalone, in sync with the audio track, or on occasion the audio track will play alone. As a result, much of the percussion is textural and extremely syncopated/arrhythmic. At certain points within candidate 3’s portrait, the audio and midi tracks were spliced and shifted to suite the rhythm of the section. These changes were minimal and only when absolutely necessary. The audio files, in

occurring order, exhibit a pair of tourists walking through a spice market in Marrakesh, someone climbing over fallen branches and leaves, and a steam train.

Within the steam train audio track, a section contained the train's horn as it sped by. Through an incredible coincidence, this section matched, both rhythmically and harmonically, a section already written with only minor rhythmic changes needing to be made. This occurs at approx. 4:02 minutes into the track.

Audio tracks as listed -

Souks Marrakesch 4.wav by jensfelger on April 5th, 2018 from https://freesound.org/people/jensfelger/sounds/424280/. Changes have been made.

Steps on Dry Leaves with Variations by thebiffy on June 3rd, 2022 from https://freesound.org/people/thebiffy/sounds/636562/. Changes have been made.

mab-train-nt4-xy.wav by mab on September 18th, 2006, from https://freesound.org/people/mab/sounds/22953/. Changes have been made.

Production notes

Each of the instruments were specifically designed in Omnisphere to suite the individual character of the planet they represented eg. the Sun as all consuming; rushing and heavy. The character was decided through both its astrological function (eg. Mars representing of emotion and drive), its place in popular culture, and its astronomical proportions such as scale and proximity to earth.

The instruments draw upon both samples and oscillators, and were specifically designed (mostly through internal modulation) to sound organic and dynamic. While none of the instruments sound exactly like existing instruments, they were designed through modulation and automation to behave like real instruments in their own right. This was most realised by automating filter and amplitude envelopes, as well as filter cutoff, to create a "performance" of its own.

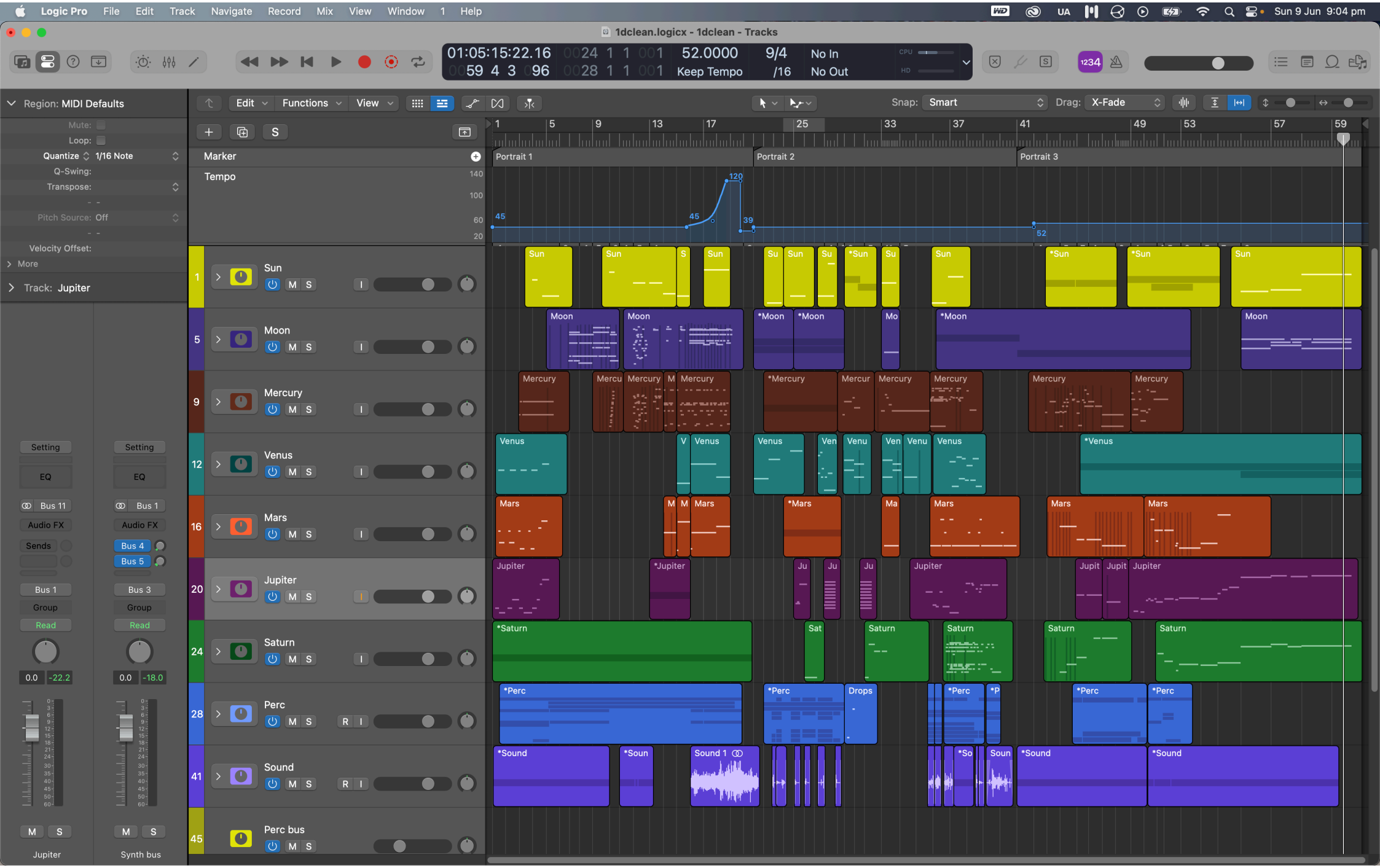
Multiple versions of certain instruments were created in order to showcase different "techniques", just like a real instrument would. This is best demonstrated with the Moon instrument, where three different versions had to be created. The original is a plucked sound with a sharp decay and little to no sustain. A tremolo picked version of this was created through adjusting envelopes, as well as a sustained drone version. When creating these variations, it is important to note that no sound source was altered, but rather the processing around the sound source.

Certain instruments were designed to represent real instruments and were placed under certain restrictions. Mercury resembles a piano, a sharply decaying polyphonic instrument with a large range. Venus is to mirror a violin, with its clear single line, and the ability to play double stops and portamento. Saturn resembles a saxophone, a single line instrument with a warm tone and the ability to play portamento. Jupiter's closest resemblance is trombone, with a brassy tone and the ability to play single lines and multiphonics. As these were instruments in an electronic and microtonal setting, writing for these instruments was at times unconventional and produced results unlikely to that of the real world. However, they were consistent with the internal logic of the composition, creating a sort of parallel to the instruments of the real world.

Writing into a DAW presented some unique compositional opportunities. Not only was it easier to shape performances and sounds to exactly suite the needs of the composition, the DAW became part of the composition. The standout example for this is at 1:02 minutes, where track mute automation was used to create musical stabs and glitches resembling those often found within electronic music. Another less noticeable moment is at 2:46 minutes, where a previously written section's midi cells had each been shifted sporadically, to create the sense of a coherent chaos.

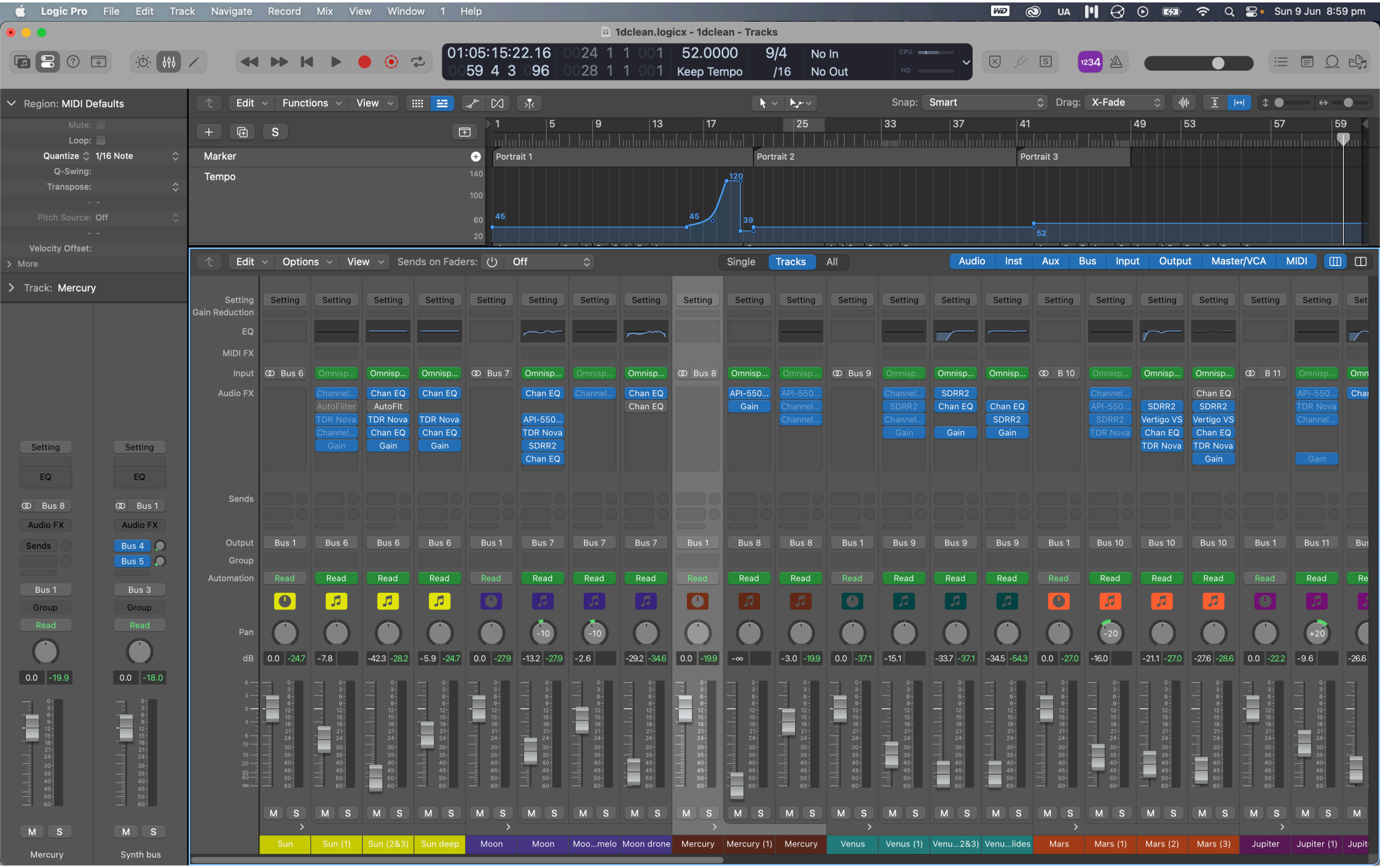
In order to mix the piece, multiple variations of the same instruments had to be created in order to adapt to different problems. This proved to be a challenge but further created contrast and dynamism between sections. Reverbs were applied both individually and wholly to the master bus, the latter to create a sense of space, the impression that this is a performance that is really happening. Finding a reference to mix the piece against was quite difficult, however, an orchestral style of mixing where dynamics are strongly preserved proved to be most suited to the piece.

The cover page image is *The zodiac man watercolour painting by a Persian artist* sourced from https://wellcomecollection.org/works/pypg2fmj. No changes have been made.


Logic Pro File Edit Track Navigate Record Mix View Window 1 Help
Sun 9 Jun 9:04 pm
1dclean.logicx - 1dclean - Tracks
01:05:15:22.16
59 4 3 96
52.0000
Keep Tempo
9/4
/16
No In
No Out
Region: MIDI Defaults
Mute:
Loop:
Quantize 1/16 Note
Q-Swing:
Transpose:
Pitch Source: Off
Velocity Offset:
More
Track: Jupiter
Edit Functions View
Snap: Smart
Drag: X-Fade
Marker
Tempo
Portrait 1
Portrait 2
Portrait 3
Sun
Moon
Mercury
Venus
Mars
Jupiter
Saturn
Perc
Sound
Perc bus
Setting
EQ
Bus 11
Bus 1
Audio FX
Sends
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Bus 3
Group
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Jupiter
Synth bus


Logic Pro File Edit Track Navigate Record Mix View Window 1 Help
Sun 9 Jun 8:57 pm
1dclean.logicx - 1dclean - Tracks
01:05:15:22.16
59 4 3 96
52.0000
Keep Tempo
9/4
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No In
No Out
Region: MIDI Defaults
Mute:
Loop:
Quantize 1/16 Note
Q-Swing:
Transpose:
Pitch Source: Off
Velocity Offset:
More
Track: Mars
Edit
Functions
View
Snap: Smart
Drag: X-Fade
Portrait 1
Portrait 2
Portrait 3
1 Sun
2 Sun (1)
3 Sun (2&3)
4 Sun deep
5 Moon
6 Moon
7 Moon tremelo
8 Moon drone
9 Mercury
10 Mercury (1)
11 Mercury
12 Venus
13 Venus (1)
14 Venus (2&3)
15 Venus slides
16 Mars
17 Mars (1)
18 Mars (2)
19 Mars (3)
20 Jupiter
21 Jupiter (1)
22 Jupiter (2)
23 Jupiter (3)
24 Saturn
28 Perc
29 Bass perc
30 Hi hat
31 Snare
32 Bongo
33 Zaps
34 Bass drum
35 Electro toms
36 Drops
37 Micro click 1 | Ch1
38 Micro click 2 | Ch2
39 Micro kick | Ch3
40 Boom
41 Sound
45 Perc bus
46 Synth bus
47 Master bus
Setting
EQ
Bus 10
Audio FX
Sends
Bus 1
Group
Read
0.0
-27.0
Mars
Bus 1
Bus 4
Bus 5
Bus 3
0.0
-18.0
Synth bus


Logic Pro File Edit Track Navigate Record Mix View Window 1 Help
Sun 9 Jun 8:59 pm
1dclean.logicx - 1dclean - Tracks
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Keep Tempo
No In
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Region: 4 selected
Mute:
Loop:
Quantize Off
Q-Swing:
Transpose:
Pitch Source: Off
Velocity Offset:
More
Track: Mars (2)
Edit Functions View
Snap: Smart
Drag: X-Fade
Mars (2)
Manual
Compare Copy Paste Undo Redo
View: Editor
PATCH BROWSER
DIRECTORY: All Spectrasonics
Search
Attributes Sound Match
Category Type Genre Author
All
ARP + BPM
Bells and Vibes
Bowed Colors
Distortion
Electro Perc
Electronic Mayhem
Ethnic World
Guitars
Hits and Bits
Human Voices
Keyboards
Noisescapes
Organs
Pads + Strings
Phoenix Rising
Sweet Beef
Wakandan War Rhino
Backwards Neosoul
Drop Springs
Weathered Strummin
Circus Nightmare
Muted Expectations
Brainball
Replicants
Innerversions
Intimate Bouncing Mallets
Analog Vibralead
Sort
UTILITY
HW
default multi
1 2 3 4 5 6 7 8 MULTI SYSTEM
OMNISPHERE
POWER SYNTH
Mars2
SPECTRASONICS
ORB MAIN A B C D FX ARP
MOD MATRIX ZOOM
1 2 3 4
SMOOTH STATUS SOURCE AMOUNT TARGET TARGET PARAMETER
MUTE INVERT LFO1 Filter Env Attack Trim
MUTE INVERT LFO1 Other layer
MUTE INVERT LFO2 Other layer
MUTE INVERT LFO2 Amp Env Decay Trim
MUTE INVERT LFO1 LFO3 Depth
MUTE INVERT LFO3 Cutoff
MUTE INVERT LFO2 Resonance
MUTE INVERT LFO3 LFO4 Rate
MUTE INVERT LFO4 Other layer
MUTE INVERT Mod Envelope1 Other layer
MUTE INVERT Velocity Cutoff
MUTE INVERT Velocity Sample Granular Intensity
Omnisphere
Setting
MIDI FX
Omnisphere
SDRR2
Vertigo VS
Channel EQ
TDR Nova
Sends
Bus 10
Group
Read
-21.1 -27.0
Setting
EQ
Audio FX
Bus 1
Sends
Bus 1
Group
Read
0.0
M S
Mars (2)
Mars
Venus
Mars
Jupiter


Logic Pro File Edit Track Navigate Record Mix View Window 1 Help
Sun 9 Jun 8:59 pm
1dclean.logicx - 1dclean - Tracks
01:05:15:22.16
59 4 3 96
52.0000
Keep Tempo
9/4
/16
No In
No Out
Region: MIDI Defaults
Mute:
Loop:
Quantize 1/16 Note
Q-Swing:
Transpose:
Pitch Source: Off
Velocity Offset:
More
Track: Mercury
Edit Functions View
Snap: Smart
Drag: X-Fade
Marker
Tempo
Portrait 1
Portrait 2
Portrait 3
Edit Options View
Sends on Faders: Off
Single Tracks All
Audio Inst Aux Bus Input Output Master/VCA MIDI
Setting
Gain Reduction
EQ
MIDI FX
Input
Audio FX
Sends
Output
Group
Automation
Pan
dB
Read
Sun Sun (1) Sun (2&3) Sun deep Moon Moon Moo...melo Moon drone Mercury Mercury (1) Mercury Venus Venus (1) Venu...2&3) Venu...lides Mars Mars (1) Mars (2) Mars (3) Jupiter Jupiter (1)
Mercury
Synth bus