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Introduction

The topics I plan to explore in my Final Creation Project are sound design techniques and their implementation in commercial electronic music. I will be looking at a number of subgenres, artists, trends and songs to 1) identify the core elements of various styles of electronic music and 2) analyse the sonic landscape of these styles and develop a solid understanding of the sound design methodologies. My research will range from primary sources, such as interviews with selected artists, behind-the-scenes videos and track breakdowns, to academic sources, such as books and journals, depicting sound design and electronic music in general. Such research will help me build a theoretical foundation of the subject, which will in turn allow me to create a portfolio of original music that explores these techniques in unusual and interesting ways. The resulting artifact will be a 30-minute EP consisting of experimental electronic instrumentals, as well as more formulaically commercial songs, all based around the concepts of complex electronic music production, intriguing soundscapes, instrumentation and boundary-pushing sound design.

Techniques

- **Synthesis**

One of the key sound design techniques I will explore in my project is synthesis. Any sound aside from drum hits, vocals and other clearly sampled elements, I will synthesise from scratch myself. I have made a list of key synthesis types I will be experimenting with, paired with relevant synthesisers for each type.

Synthesis type	Description	Synthesiser
Subtractive	<i>Usually</i> harmonically rich signal is attenuated by a filter, subtracting frequencies and shaping the timbre (Lindh, 2018)	u-He <u>Diva</u>
Additive	Output of multiple sine wave generators is added together to create timbre, overtones, harmonic and inharmonic partials (Iverson, 2019)	Native Instruments <u>Razor</u>
Wavetable	Arbitrary, single-cycle waveforms are reproduced periodically and modified or varied by different parameters (Roads, 1996)	Xfer <u>Serum</u> Native Instruments <u>Massive X</u> Arturia <u>Pigments</u>
FM	The frequency of an oscillator is being modulated by a modulator in accordance with the amplitude of the modulating signal (Dodge and Jerse, 1997)	Xfer <u>Serum</u> Native Instruments <u>FM8</u>
Granular	Short fragments of audio (usually around 50ms) are triggered simultaneously at different speeds, volume and frequencies (Roads, 2001) to create evolving, unpredictable sounds (Eckel, Rocha and Becker, 1995)	Audio Damage <u>Quanta</u> Ableton <u>Granulator II</u>
Sample-based	Instead of a fixed wavetable and a single-cycle waveform, a large, sample-based wavetable is being scanned to create rich, time-varying sounds (Russ, 2004)	Izotope <u>Iris 2</u> Arturia <u>Pigments</u>

- Sample manipulation

Another method of sound design involves manipulating pre-existing samples and mangling them in unusual ways. This involves warping, re-pitching, slicing and time-stretching them. Ableton offers a number of algorithms, such as beats or texture, which lead to various,

interesting results. I will also be looking into tools like Native Instruments' Kontakt or Ableton's Sampler and Simpler as they are very advanced devices, designed specifically for sample manipulation. Kontakt 6 offers a unique selection of sampling modes ranging from classic analogue devices to modern techniques such as granulation. Complex sample manipulation can often lead to results unachievable by synthesis and other means of sound design. One of the world's biggest electronic musicians, Flume, is known for using a lot of ready-made samples and manipulating them to the extreme to achieve sounds never heard before. He has showcased this technique on many of his popular tracks such as "Hyperreal" or "Amber" (Flume, 2019) and there are many threads on online forums dedicated solely to discovering the samples used in Flume's music (Reddit, 2019).

- FX and plugins

Creative use of processing plug-ins and effects is another very powerful technique in sound design. In his *Sound On Sound* article, Jem Godfrey (2011) describes "plug-in torture" as a surprisingly easy way to achieve radical effects. What he recommends is either using everyday plugins, like a flanger, and tweaking the settings to the extreme, or using the "wrong" plugins on the "wrong" sources, such as a vocoder on a drumbeat or a guitar amp on a synth pad. Another, slightly more extreme example is using the popular pitch-correction tool – Melodyne – to trigger the blobs of audio and generate random melodies. In his 2019 documentary, Flume shows how he created a lead for his song from an old soul sample loaded into Melodyne (Flume, 2019). The possibilities are truly endless. I will be making sure to think creatively and experiment with these techniques.

Genres and artists

Electronic music has greatly evolved over the last years. Below, I listed some of its many subgenres and artists that I plan to draw inspiration from.

Genre	Description	Artists
Future bass	Subgenre of bass music characterised by less intense drops, filtered, pulsating synth chords, exotic percussion and sometimes brass sounds (Turner, 2017)	Flume What So Not Quiet Bison DROELOE
Vapor twitch	Minimalist combination of beat-centric trap and spacey soundscapes, often considered as airier and more subdued “post-future bass” subgenre (Cramer, 2019)	Ekali Pham Cella ODESZA
IDM	Cerebral, ambient dance music, suited more for home listening than dancing, focused on individual experimentation rather than adhering to genre-specific characteristics (Pollard, 2017)	Jon Hopkins Rival Consoles FourTet Avoure
Electropop	Variant of synth pop combining elements of electronic and pop genres with heavy emphasis on its electronic sound (Jones, 2006)	BAYNK Whethan Diplo
Experimental glitch	“Aesthetic of failure”, deliberate use of glitch-based audio and other sonic artifacts such as abused audio recording equipment, digital electronics or system errors (Cascone, 2000)	Flume SOPHIE Arca Lapalux

While there are many other electronic music genres I will be directly or indirectly inspired by, these five are the closest to defining the style and aesthetic I aim for, while simultaneously allowing for a lot of experimentation with their form and sound. I will not be adhering to genre-specific guidelines, rather blending the different styles together and borrowing suitable elements on a track-by-track basis.

EP concept

In order to help organize the production process I have created a simple blueprint for songs

I want to produce and paired them with relevant reference tracks.

No.	Description	Vocals	References
1.	▪ Downtempo, chill ▪ Instrumental ▪ Lush synth pads ▪ Rich soundscape ▪ Organic drums and percussion ▪ Ambient vocal phrases ▪ Jazzy chord progression	Male or female (phrases)	▪ Flume – Quirk ▪ Quiet Bison - Stingray
2.	▪ Electropop instrumentation ▪ Drum & bass, UK garage rhythm ▪ Catchy vocal and/or synth lead ▪ Commercial	Female	▪ Naomi Wild – LA LA LAND ▪ Flume – The Difference
3.	▪ Electronica meets rap ▪ Prominent and aggressive synth lead ▪ Heavy drums and sub-bass ▪ Possibly with ambient, female vocal hook	Male (rap) Female (sung)	▪ Pham – Movements ▪ Mazde - Neverland
4.	▪ Chill house and vapor twitch ▪ Four-on-the floor rhythm ▪ Danceable beat ▪ Distorted synth chords	Male	▪ Whethan – Radar (feat. HONNE) ▪ BAYNK – Water
5.	▪ Trap-influenced instrumental ▪ Experimental synths and sound effects ▪ Verse, build up, drop structure ▪ Glitchy, chaotic lead ▪ Hard-hitting drums and bass	X	▪ What So Not – Warlord (feat. SLUMBERJACK) ▪ Hermitude - Midnight Terrain

6.	▪ Commercial trap and future bass ▪ Laid-back synth chords leading to a powerful instrumental drop ▪ Vocal chops	Female	▪ Petit Biscuit - Suffer ▪ Ekali – Blame (feat. ZHU) ▪ What So Not – We Can Be Friends (Quiet Bison Remix)
7.	▪ Very experimental interlude ▪ Sound design driven ▪ Chaotic drumbeats ▪ Granular synths and sound FX	X	▪ Eprom – Phoneme Gothik ▪ Lapalux – Make Money
8.	▪ Minimal techno and house ▪ Steady rhythm paired with unpredictable, developing synths	X	▪ Jon Hopkins – Emerald Rush ▪ Avoure - Aura
9.	▪ Long, vapor twitch intro ▪ Stripped-back male verse in the middle ▪ Hauntingly beautiful instrumental outro carried by evolving synths and piano melodies	Male	▪ Flume – Weekend ▪ Rival Consoles – Memory Arc

This outline will serve as a backbone of my project. It sets out goals and provides guidance in the creation process. Importantly, it offers enough room to experiment with the different ideas. Upon a successful completion of this plan, I will produce a diverse portfolio of tracks which blend and explore a number of electronic music genres. In addition, I will put conscious effort into making the EP sound cohesive as a whole by using a unified sound palette and putting heavy emphasis on sound design across the project. This includes having dedicated sound design sessions to craft the sounds separately from the song writing process. It is argued by many professional sound designers that treating the two independently helps maintain the creative flow and allows to explore sound design more freely, without worrying about the

outcome having to fit the current project (Avarese, 2017). I also aim to use similar processing chains across all sessions to help define the sound of the EP even further. These will include: RC-20 Retro Color, Decapitator, Valhalla Shimmer, Xfer OTT, Ableton Resonator, Erosion, FabFilter Saturn, Izotope VocalSynth 2 and more.

Resources and potential issues

I can carry out most of the production tasks from home. As far as resources are concerned, I personally own all the software and hardware I need to develop a high-quality portfolio, although I might invest in some hardware synthesisers, such as Korg Monotron Delay, to enrich my sound design experience. Once I finish writing and producing the tracks, I will need studio access to record vocals and master the EP. Unfortunately, I do not have good enough acoustic treatment at home to carry out these two tasks to a professional standard.

One of the most important things I will need to pay attention to is good song writing. I can see myself getting lost in endlessly creating and tweaking sounds without recognizing the issue in ineffective writing. The melodies and chord progressions need to live up to a commercial standard, to truly let the sonic palette shine through. I believe adhering to the original plan and referencing the selected tracks will help me through that process.

Research and documentation

I have made a precise list of academic sources I plan to reference in the written part of my project:

- Daniel Warner – Live Wires: A History of Electronic Music
- Curtis Roads – Composing Electronic Music: A New Aesthetic
- Thom Holmes – Electronic and Experimental Music: Technology, Music, and Culture
- Simon Reynolds – Energy Flash: a Journey Through Rave Music and Dance Culture
- Curtis Roads – The Computer Music Tutorial

- Michaelangelo Matos – The Underground is Massive: How EDM Conquered America
- Rick Snoman – Dance Music Manual: Tools, Toys and Techniques
- Matthew Collin – Rave On: Global Adventures in Electronic Dance Music
- Iara Lee And Simon Reynolds – Modulations: A History of Electronic Music - Throbbing Words on Sound
- Mark Vail – The Synthesizer: A Comprehensive Guide to Understanding, Programming, Playing, and Recording the Ultimate Electronic Music Instrument
- DeMers Joanna – Listening Through the Noise: The Aesthetics of Experimental Electronic Music
- David Toop – Ocean of Sound: Aether Talk, Ambient Sound and Imaginary Worlds
- Nick Collins – The Cambridge Companion to Electronic Music
- Martin Russ – Sound Synthesis And Sampling
- David Stubbs – Future Sounds: The Story of Electronic Music from Stockhausen to Skrillex
- Thomas B. Holmes – Electronic and Experimental Music: Pioneers in Technology and Composition

I will thoroughly document and break down my production process with references to specific composition and sound design techniques. I will be looking into their origins, pioneers and implementation. Positions like Martins Russ’ “Sound Synthesis And Sampling” and Rick Snoman’s “Dance Music Manual: Tools, Toys and Techniques” will provide insight into the technical part of my project and explain the reasoning behind the methodologies I apply and the tools I use. When discussing the different subgenres, I will be looking at the history of electronic music as a whole to analyse its evolution and identify the impact its various styles had on its modern sound. I also plan to evaluate what is next for electronic music. Its landscape changes rapidly so it is important, as an electronic artist, to be alert and stay on top of the shift

(Turner, 2017). I will be referencing my own knowledge about the genre, paired with academic depictions of the subject like David Stubbs' "Future Sounds: The Story of Electronic Music from Stockhausen to Skrillex" or Simon Reynolds' "Energy Flash: a Journey Through Rave Music and Dance Culture".

Conclusion

In conclusion, I will be learning about and exploring a vast range of complex sound design techniques to produce a cohesive collection of electronic tracks. In order to organize the production process and make the project evaluable, I have outlined the key genres, styles, songs and artists I will be referencing. I have also made a concise list of tools, instruments, plugins, synthesisers and techniques I will spend the most time experimenting with. In addition, I will synthesise all the synth patches myself to truly elevate the originality of my sound. As far as academic research is concerned, I will be reading, evaluating, analysing and referencing a broad but specific list of books and journals about history of electronic music, synthesis, sound design and composition. I will also be taking advantage of primary sources such as interviews or documentaries featuring the world's leading electronic music producers. My goal is to achieve a greater understanding of electronic music, its origins, trends and genres and an improved knowledge about sound design methodologies and their implementation in creating music. By endlessly learning about and experimenting with various tools and techniques, I plan to produce a portfolio of tracks which will be on par with the selected references in terms of quality, and explore new fields in terms crafting new, original and unique sounds.

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