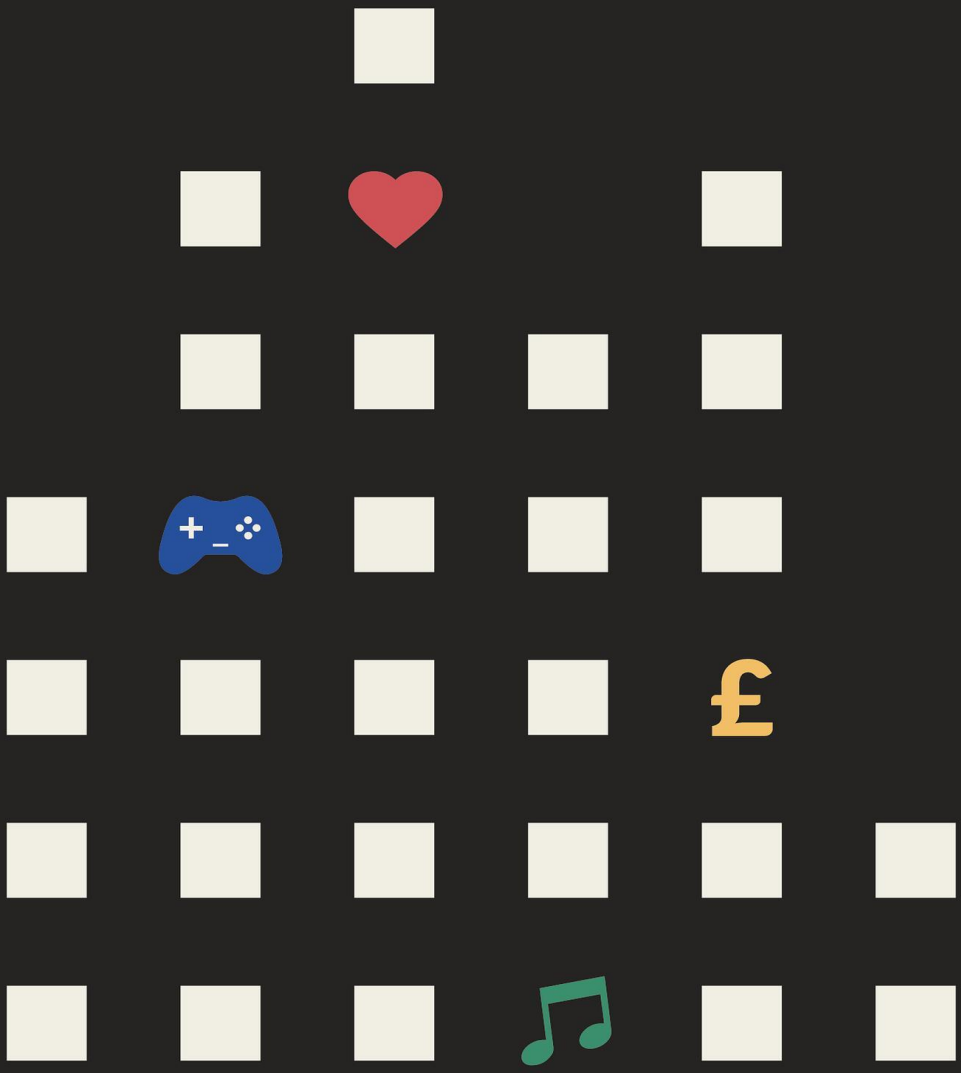
Bits & Pieces

Practical Insights from an Indie Game Composer



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First edition

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Contents

Preface

What does it mean to be a successful indie game composer? This is a question I've spent years grappling with, and it's the question this book is here to help you explore.

This book is for anyone curious about working as a freelance indie game composer, written by someone who has been navigating that world on and off for years. Many authors of books like this may regale you with their illustrious credentials upfront. The globally renowned projects they've worked on. The awards they've won. The places they've travelled. It's a strategy to frame themselves as proven authorities who know the one-best-way to succeed.

That's not me.

I'm going to let you in on a secret. I don't think anybody actually knows a sure-fire formula for success, because one doesn't exist. Especially for indie games where the budgets are lower, the teams are smaller, and the diversity of content knows no bounds. Sure, hard work and aptitude will take you so far. But luck, privilege, and perseverance (and indeed the privilege to be able to persevere) all play their roles too, and no amount of how-to guides and reflections in a book like this can compensate for those factors. I've certainly not written this from a mountaintop of fame.

What I can tell you is that I've contributed audio to numerous video games in various capacities consistently for over a decade, collaborated professionally with teams of various sizes, and juggled freelance work alongside a day job, family, and more. I guess you could refer to me as a semi-professional indie

game composer. Whatever label you use, my journey has been a fumble through trial and error, and I've picked up and noted a few things along the way worth sharing. I've compiled, curated, and expanded upon a number of my blog articles from prior years into a single accessible resource for newcomers and those curious to learn more about this topic.

That's this book.

Many wonderful books and guides on video game composition focus on the technical craft of writing music for video games, or contain tutorials on the specific features of specific applications. These are fantastic resources. I've instead focused on the things that have personally tripped me up over the years. The fundamental stuff. The terminology and navigation stuff that it can feel like everyone else seems to just know implicitly. You might be familiar with navigating a digital audio workstation ("DAW"), and using plugins/samples to create music, but have questions like how much should I be charging? Where do I find new opportunities? What even is sound design? What's the difference between mixing and mastering? What is synthesis? What do I need to think about when actually putting my music into a game? Am I even going in the right direction with this?

As far as I'm aware, there isn't a universally accepted definition of what an "indie game" is. It's at best a nebulous term where the budgets, teams, and scopes all vary, with the only apparent connection being the absence of ownership by a bigger entity who resources you. In this book, 'indie games' means projects by small teams or solo developers, often self-funded or supported by boutique publishers. Where the line between a hobbyist and a professional is more foggy. Where folks may very well have multiple roles in delivering the game.

This is why this book contains chapters on sound design, dialogue editing, synthesis and more, in addition to reflections on composing music. In my experience, having a broad, generalist skillset with game audio (and more!)

can serve you well when working on something like an indie game.

I'm not going to promise you that this book will give you a formula for guaranteed success. It isn't some comprehensive how-to guide on how to be a successful indie game composer. But I do think it has the capacity to save you significant amounts of time, and equips you with the tools, insights, and clarity to help navigate your own path in this exciting, evolving, and often unpredictable industry.

I'll see (and hear!) you out there.

I

Reflections and Personal Growth

1

The Top 4 Mistakes I Made As An Indie Game Composer

Do you ever think about the mistakes you've made? Not like an awake-at-3am-thinking-about-my-life-mistakes kind of way, but more in a moment-of-calm, introspective kind of way?

My journey as a music composer has been an esoteric one. I never went to music school or really hung out with any other musicians, so I kind of developed my skillset in a bit of a bubble. As a result, I made (and probably still make) a lot of mistakes and learned many lessons along the way.

Having spent the last decade going from a hobbyist to part-time work to professional freelancing, I find myself reflecting on what I wish I had known when I started out. I'm by no means an expert (and I don't know if I ever will be), but if you're at the start of your journey as a video game composer, I hope you find something of value here.

Mistake #1 - I Didn't Play Enough Video Games

This has always been a problem of mine. While I love reading about, researching, and keeping up to date on industry developments in the indie game space, I am fabulously bad at actually sitting down to play games.

Being someone who is hardwired to try and squeeze every last drop of constructiveness out of their day, I always wrestled with the guilt of sitting down and just relaxing. Allergic to just sitting still and enjoying a game. As if I could be spending my time elsewhere, like writing music. I think this has been my single biggest pitfall as a game composer.

Whether it's on a panel or just a conversation with someone, I've been asked on occasion what my favourite game music is. This is something that should be on the tip of my tongue, right? I can talk about classical composers, film composers, and contemporary music that I love from all walks of life. But as someone who purports to be a video game composer, I should be able to list reams and reams of games out, and the people who composed the music to them. But I can't. Or at least I couldn't for a long time.

I'm hyper-aware of this when in the company of friends who can list game soundtracks with encyclopaedic knowledge and fervour. It has taken me years to learn that sitting down with a game and really soaking it up by studying and enjoying how the visuals, gameplay mechanics, and narrative all influence (and are influenced by) the music and other audio is directly useful to me as a composer. Possibly even essential.

By playing more games, I can more consciously formulate my own opinions and approaches to indie game music composition. Sounds obvious, doesn't it?

Mistake #2 - I Didn't Let My Ears Rest

Have you ever worked on something into the early hours of the morning, only to come back to it the next day to see a gaping, blatantly obvious way of how to make it better

Yep. Me too.

Having spent the majority of my composing life alongside a career in the finance industry, I consigned most of my music writing to evenings and weekends. If I wanted to contribute to a project, I had to work faster than I probably would have otherwise. As a result, I would try to write, mix, master, and export a piece in the shortest timeframe I could manage. This was a mistake.

I do believe in the power of creative constraints, and this approach probably helped in that regard, but I have had to develop the discipline to stop, slow down, and come back to something later.

I've found this to be more of a problem than the opposite; the problem of writer's block and motivation. I've had to learn the discipline and motivation that, by slowing down in the short term, I will speed up the quality of my output over the long term.

Even if I think something sounds awesome, I will give it a couple of days and come back to it with a fresh pair of ears. In my view, it has improved the quality of my work.

Mistake #3 – I Didn't Prioritise Networking

I used to think about 'networking' as some kind of conceited, inauthentic attempt at trying to get to know people purely because of what you stood to gain from a connection, as opposed to a genuine curiosity to meet new people. I often avoided it because of that.

That was a mistake.

In my experience, most indie game composers work freelance rather than in-house at a studio, so having a strong network of people to connect with is key. Going to networking events, whether through informal meetups or more formal events, has been a great way to meet new people working in and around a space similar to mine. I have found it best to approach it with no expectations, be a friendly person (at least I hope), and just try to do as much (or more) listening as speaking. If you've met me in real life, you'll understand that this last one can be a challenge for me at times.

When I think about some of the most awesome projects I've worked on (outside of *Propulsion Games*), they are all, with one or two exceptions, resulting from people I have met in person. Some of them have taken years to come to fruition, some have led to me making lifelong friends, and all of them have given me a boost in self-confidence and shut down the sliver of imposter syndrome that tries to make an appearance every now and then.

But I still haven't prioritised networking as much as I could have over the years, and I'm actively working to fix that.

Mistake #4 - I Was Obsessed With Buying Plugins

As I mentioned above, before a couple of years ago, much of my music writing time was in the evenings and weekends alongside a career in another industry entirely. As a way of compensating for the lack of time, I fell into the trap of buying software. Purchasing plugin after plugin, thinking that I'd be able to slap something on a piece of music and it would make it better. It didn't.

I know I'm not the only one. This affliction is also referred to as *gear acquisition syndrome*, aka "GAS". I would see deals and add another plugin or piece of software to my ever-growing arsenal, but the problem for me was that I wasn't purchasing with intention or growing in capability as I bought these new tools.

A couple of years ago, I took a step back, decluttered my collection of plugins, and even used the capabilities that come with my digital audio workstation where I could. I now spend the time I was spending browsing, buying, and installing on learning, experimenting, and practising with a smaller pool of software. I feel as though my skill set has benefited greatly from this.

Summary

Here are four mistakes I've reflected upon and learned from over the years:

- I didn't play enough video games.
- I didn't let my ears rest.
- I didn't prioritise networking.
- I was obsessed with buying plugins.

I want to emphasise a point at the end: these are not necessarily regrets; I think mistakes offer an excellent opportunity to learn and grow from experience. Ultimately, I'm still here composing game music. And I suppose in a way it's

thanks to learning from these mistakes that I am.

2

3 Reflections from Analysing 500+ Of My Compositions

If we ever met, it probably wouldn't be long before I started talking about spreadsheets. Few would be surprised to learn that since 2004, I have logged and tracked every music composition I ever made in a glorious spreadsheet of my own. Having recently surpassed 500 compositions across twenty years, I thought it would be interesting to dive into some of the data and see if anything insightful could be gleaned from the analysis.

But before all that, a little background on my journey as a video game composer, which will hopefully contextualise some of the data here. As well as let me take a little trip down memory lane.

I started out in earnest, and indeed remained for many years, as a hobbyist composer. My first taste of collaborating with others was as a teenager, not in a band like many, but as a composer for an indie game project with friends. The project never came to fruition, but it gave me a glimpse of something that has stayed with me for nearly two decades: the feeling of collaborating with a small group of people striving to achieve a shared, ambitious creative vision for a video game. This remained a spare-time endeavour on evenings and weekends for me for many years. While I was fortunate enough to have piano

lessons (and go through the grade exams) in my younger years, and was able to study for a Music GCSE and Music Technology A-Level, I never attended a music school or formally studied anything audio-related beyond that, or indeed ever worked in a traditional studio system in an audio-related role. I opted instead for an Accounting & Finance degree and a career in Finance and Data Analytics.

It wasn't until 2013 that I decided to invest more time and effort into writing music for games. In the years that followed, opportunities and interests grew into making indie games alongside my brother, scoring (and filming!) self-produced short films, doing event videography, securing client work, expanding into sound design, and making friends with folks who shared my interests by collaborating on projects. I then spent two years from late 2021 working part-time in finance and data analytics, as a freelance composer and sound designer, and as an indie developer with my brother, before diving fully into the world of audio and indie game development. It's context-switching galore, but I'm genuinely thrilled to be in the privileged, challenging, and utterly generalist position that I am in.

So why am I saying all this? I want to drive home that I have absolutely no idea whether any of this is a typical journey for people in game audio or whether a typical journey even exists. I have no real clue whether 500 compositions is a lot given the years, or whether I've gone about any of this the "right" way. Maybe it depends on how you look at it. I haven't followed a path where my experience has stemmed from an intentional expansion of skills sourced from a formal curriculum or a traditional studio system.

My music has often been made when I've been tired from a long commute back home from London, and discipline (thankfully) has triumphed over motivation. I've gone against almost all sound advice to focus on a single discipline and instead have said yes to almost every passing, exciting, exhausting music-related opportunity that has come my way. And I've done it in tandem with a career in a different sector entirely. Being completely honest, I was a little

insecure about that. At best, it's a confusing LinkedIn profile, and at worst, you're not given the time of day by anyone as a legitimate composer who cares about their craft.

Over the years, I've always tried to take something useful away from each experience (good or bad), learn a little bit about a broad range of topics, work collaboratively with a diverse range of people and solve problems in creative ways. Overall, I have found that this approach has made me the generalist, curiosity-laden, classically-fascinated, synth-loving, sound-making, data-wrangling, code-tweaking, spreadsheet-adoring, pun-wielding, walking identity crisis that I am today. And I'm finally at a place in life where I am at peace with that.

The Data I've Collected On My Compositions

Here's a little bit about the data I've been collecting on my compositions. Firstly, what does "a composition" represent? It's basically a single piece of music. This ranges from a short stinger or bumper of just a few seconds to a larger, more sprawling track that lasts a few minutes.

I've not separately included the constituent parts of a given piece of music (with games being an interactive medium, music can be implemented in all sorts of ways in-game, including dynamically assembled horizontally and/or vertically, etc). So if a piece contained lots of constituent parts, that's still one composition in this context.

Secondly, I'd also note that I haven't documented every single musical sketch I've ever made. More often than not, items that made it onto the list were developed and iterated on enough that they felt like a cohesive track. With that being said, for each entry that I tracked, I've specified the following:

- Track name
- Project name (that the track was for).
- The type of project that it is ("Video Game", "Game Jam", "Films", "Personal" or "Other").
- Month and Year of composition
- The track length
- The fate of that project. This is either "Released" (released for the project it was intended for), "Upcoming" (in an upcoming project), "Reused" (initially in cancelled/rejected projects but I reused them for other things), "Unused - Project Cancelled" (the project ended up being cancelled and music left unused), "Unused - Rejected" (music that was not used in the projects they were intended for and left unused. Either I rejected it or the client did).

Here are three reflections I've made based on my analysis.

Reflection #1 – I've Said Yes To Almost Everything

At time of writing, I have catalogued **586** tracks across **102** projects, totalling just over **20** hours of music. This is from:

- 320 video game tracks across 32 projects (ranging from single tracks for pitches, all the way through to full original soundtracks).
- 49 film-related tracks across 24 projects. This is for things like short films (many of which are self-produced with friends, so are technically also 'personal'!), wedding videography scores, and TV idents (short musical identifiers).
- 15 tracks from 8 Game Jam projects.
- 119 tracks from 13 personal projects (this is usually music written when I'm experimenting with new software, techniques or styles).
- 83 tracks from 25 'Other' projects. This is anything that doesn't fit into

the above. Interestingly (to me at least!), many of these were podcast intro themes.

Since 2013, I've averaged 3.4 tracks per month. That's roughly every 9 days or so. Which makes sense, given that up until fairly recently I've been pursuing this in the evenings (and not every single evening; life has happened too!).

Interestingly, when I look at the 3-month rolling average since 2004, not only can I see the average rate increasing (given I've continued to work on various projects and possibly gotten a little more expedient over time), but I can also see just how volatile my output has been in terms of track count. Definite peaks and troughs:

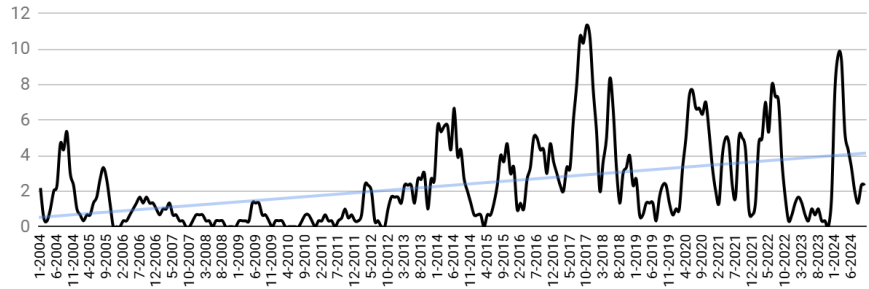

Figure 1: 3m Rolling Average of Track Compositions since 2004

This is not some attempt to brag about the multitude of projects I've worked on over the years; if anything, it's more of a reflection on the opposite. As mentioned above, I very rarely, if ever, said no to an opportunity. Even if that meant composing into the early hours for tight deadlines alongside other work. And towards the beginning of this journey, I suspect that wasn't the worst decision I could have made; I was building a portfolio from the ground up, I was finding what genres and games I enjoy writing music for, and crucially I was (and still continue to) learn techniques to help improve my composition skills, whether it's harmonisation, orchestration/arranging,

synthesis, production/mixing or anything else. Getting to do all that alongside a real-life project with others was, and still remains, incredible for my personal development.

However, I do think there comes a point when I need to take a step back, evaluate what I want to pursue strategically, and target those opportunities with intentionality. And of course, with enough open-mindedness to acknowledge that all kinds of opportunities come from all kinds of places and offer all kinds of value. That could be creative freedom, alignment with my development goals, financial benefits, or a combination of these.

Saying yes to something is implicitly saying no to something else. That 'no' could be to another opportunity that I may find more fulfilling or more strategically aligned with my goals, or to more free time to relax, or simply to more time to develop my skills in specific areas.

Reflection #2 - I Am In Little Control As To How Much Of This Is Heard

The point of needing intentionality in what I pursue creatively especially hits home for me when you profile the data by the fate of these compositions:

Tracks						
Month	Video Game	Personal	Film	Game Jam	Other	Total
Released	135	38	26	14	55	268
Upcoming	31	34			12	77
Reused	32	3	12		1	48
Unused - Project Cancelled	77	2	6		5	90
Unused - Rejected	45	42	5	1	10	103
Total	**320**	**119**	**49**	**15**	**83**	**586**

Figure 2: Summary of Compositions 'Fate' - by Track Count.

Hours						
Month	Video Game	Personal	Film	Game Jam	Other	Total
Released	4.6	2.0	1.3	0.4	1.9	10.1
Upcoming	1.4	0.1			0.4	1.9
Reused	1.2	0.1	0.4		0.0	1.8
Unused - Project Cancelled	1.9	0.1	0.3		0.1	2.4
Unused - Rejected	1.6	1.9	0.1	0.0	0.2	3.8
Total	**10.7**	**4.3**	**2.1**	**0.4**	**2.6**	**20.0**

Figure 3: Summary of Compositions 'Fate' - by Hours.

48% of my lifetime video game compositions were not used in released projects that they were made for. 32 tracks were reused (generally on stock music sites) after their projects were cancelled; 77 tracks were on cancelled projects and left unused; and 45 tracks were made and left unused when I simply went in a different direction with a different piece.

The majority of the "Unused - Project Cancelled" video game number above is largely driven by three projects. The remainder are across a number of projects, many of which saw the formation of musical ideas, but the projects were cancelled before the main body of music was in full swing.

At time of writing, **23%** of my lifetime compositions are in video games that were released.

What do I glean from this? Just that it's interesting to me that someone who set out to be a video game composer has under a quarter of their compositions in a released video game. This may be because I have predominantly worked in the indie space; it may be because of the projects I have pursued; or it may be entirely usual. I have no idea.

Another factor I started pondering as I looked at the count of released video game music was the extent to which the music's fate is tied to the game's. I originally called this section "I'm not in control of my own success", but that presupposes I am defining success as reaching a prolific audience and having music in a game that goes viral and sells millions. Maybe for some that is success (and I'd be lying if I said that wouldn't be great), but I like to think I

consider myself successful for finding intrinsic joy in the act of composing with people I enjoy collaborating with, all while being able to (eventually, albeit partly) make music for games as a sustainable living.

That being said, I am, of course, rooting for the projects I work on to see the light of day, because the alternative is the music not reaching its audience as intended. Or worse, no audience at all. But ultimately this isn't within my control. Enjoying the act of composing for games is.

Reflection #3 – It's A Marathon, Not A Sprint

I was curious if there was a way I could try to infer whether, over the years, I've been contributing projects that, on the surface at least, indicate directional growth for someone transitioning from a hobbyist to a professional video game composer. So I reviewed the data specifically from 2013 onwards, which reflects when I started moving beyond hobbyist projects.

As usual, I will caveat that this is a fairly nuanced and subjective thing that I am trying to analyse using data from a spreadsheet. It's an inexact science, and ultimately only we can say ourselves if we're going in the direction we want to with creative endeavours. There is another relevant area that I haven't analysed here: remuneration and associated agreement specifics for each project, but that's a topic in and of itself for which I don't think there is a gold standard or approach that heralds you as officially a successful professional.

That being said, there are three metrics I have proposed here to proxy for a sense of directional growth for myself. They are:

- **Video game compositions as a proportion of total compositions**. This would measure whether I've actually been pursuing video games specifically (which, ideally, is what I've been trying to do!).

- **Average tracks composed per video game project.** This can be used as a proxy for the scale of a project; i.e. more tracks per project implies a larger-scale project. Note that a project sometimes spans compositions from multiple years. So to trend it over time, for the purposes of this calculation I've considered them as separate projects (unless they are single tracks for a pitch, or projects where I finished a track or two early in the year. In these cases, I have excluded them from the calculation.
- **Average track length of my video compositions**. The assertion here is that a longer track is indicative of a more ambitious project relative to a shorter track.

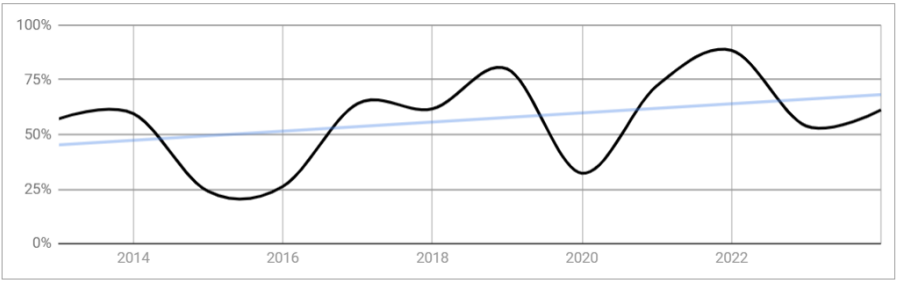

Figure 4: Proportion of video game music - by year of composition.

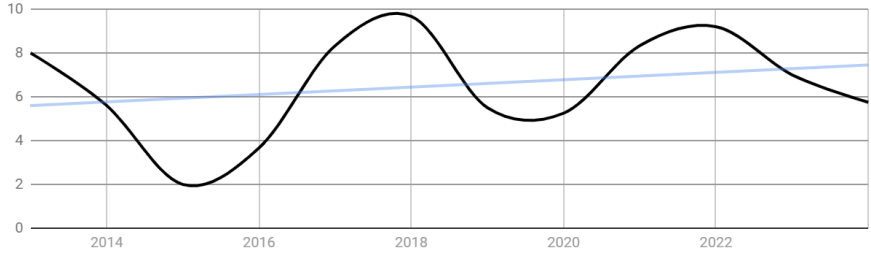

Figure 5: Average tracks per video game project - by year of composition.

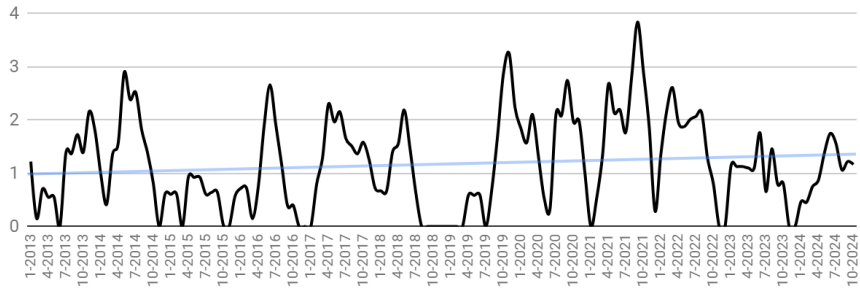

Figure 6: 3m Rolling average of video game track lengths (in minutes) - by year of composition.

Looking at the data, I'm pleased to see that things are trending in the direction I would hope for. Over the last decade, I can see that:

- I am writing more music.
- A greater proportion of my compositions are for video game projects.
- Those video game compositions are (slightly) longer, and a higher proportion of them are on the same projects, indicating increasingly ambitious projects. In fact, this is even more true when looking at the data: an earlier 2013 project was disproportionately larger than others at that time, and recent projects have spanned a couple of years.
- There is a poetic beauty to the topologies of these metrics. They are trending upwards, but that's only something that I'm able to observe when I stretch it out over a ten-plus-year horizon. They quite literally illustrate the ups and downs of composing for indie games more deftly than I could ever hope to articulate, and truly bring home to me that this endeavour is a marathon, not a sprint.

Summary

My reflections from analysing 500+ of my compositions have been:

- **Seek opportunities with my own intentionality in mind.** Saying yes to everything allowed me to experience different types of projects and develop a diverse portfolio, but after a certain point, continuing to say yes to everything implicitly means saying no to something else.
- **How much my music is heard is not in my control.** Much of my creative work was tied to cancelled projects, and I also cannot control the reach or reception of the projects that actually do get released. The value for me needs to remain in the sustained, intrinsic joy of composing.
- **It's a marathon and not a sprint.** This analysis is the result of an accumulation of my compositions, where looking at a moment in time is not as illuminating to me as looking at the trend over several years.

To most other people reading this analysis and looking at these graphs, they are just wiggles on pictures. But to me, they represent visceral memories and mixed emotions of triumphs, defeats, challenges, rewards, late nights, and an ever-so-slight, melancholic annoyance at succumbing to a self-inflicted, toxic side-hustle culture for a lot longer than I probably should have.

I hope this was an insightful read for anyone in a similar position, spending countless amounts of time pondering on whether they're making the right decisions or going in the right direction with their creative pursuits. You're not alone.

3

The Greatest Thing I Learned From Releasing Three Albums In Three Months

An area I am familiar with as a composer is that of rejected ideas, discarded drafts, and cancelled projects. They are par for the course; the natural consequence of working with other individuals to produce something inherently subjective and artistic.

When I first started writing music for video games, I had this idea in my head that composers simply sat there, eyes closed, until inspiration struck and they could write these magnificent ideas down instantly, flawlessly, and sequentially from start to finish.

I've come to realise that nothing is further from the truth (at least for me).

Whether it's refining, rewriting, or revisiting entirely, many, if not all, of my compositions that I look back on from over the years have been the result of discussing, iterating, trying new things and being open to starting all over again if needs be. And that's if the accompanying project actually sees the light of day (which, more often than not, is not within our control).

Having found myself looking through my old projects (since 2013), I realised I

had amassed dozens of tracks that fit these criteria; they ranged from draft ideas that were never used to pieces for projects which didn't end up going anywhere to pieces which ended up being replaced in whichever project they were for at the time. They generally fell into three categories:

- Melancholy piano music (a penchant of mine!)
- Ambient/Electronic music
- Orchestral music

I decided to take these tracks and incorporate them into three albums.

I don't spend much time looking back at old compositions, opting instead to focus on new projects. But my thought was that doing this would allow me to focus on the mixing and arranging aspects of my skill set by turning a set of unrelated, sometimes partially written tracks into cohesive albums. Many of them would eventually make their way into stock libraries (there were a few in the collection that were made for this purpose already, but I included them here too, as they fit well with the unused music I had), or instead simply be made to be listened to.

Either way, after going through this process, there was one thing I noted coming up time and again for me.

A Lesson Learned: Less Is More

Here's the single greatest thing I learned: l*ess is more.*

Listening back to your early compositions from nearly a decade ago is a bit like reading your old diary; a strange blend of cringe mixed with a low level of relief that you have evidence of growth in the subsequent years that followed. As I listened, I was instantly transported to my mindset at the time; I was

desperate to prove my competence as a composer, and I tried to demonstrate that with frantic complexity and unnecessary abundance.

A cacophony of ideas. Overlapping melodies and motifs.

Lots of tracks. So many instruments. More instruments equal more impressive, right? Lots of plugins. Tripping over myself in them, presumably to demonstrate how a complex mixing chain somehow makes me a complex, and therefore competent, composer.

So like a chisel to the proverbial marble, I began chipping away at the compositions until I revealed what I believed to be the core idea of each piece. Sometimes that meant taking an entire section away, or removing all the tracks except one or two.

It even occasionally meant slowing down the piece entirely. Anything that added to the noise but did not contribute to the clarity of the idea. The mixing went from a complex chain of numerous plugins to a focus on the fundamentals of a clear arrangement, with volume, panning, and EQ as the main focus. Light compression and limiting became secondary considerations during the final mixing/mastering stages. Stripped back and simplified. My goal became the same across all tracks: to have the confidence to clearly convey an idea. Once I had done that, I was actually pleasantly surprised that the core of most of these pieces was something I liked.

There were a handful of tracks that, even after these changes, I simply couldn't get to work in a way that I was satisfied with. I've set those aside to experiment with later, to see if I can craft a coherent album from them. We'll see!

Summary

The lesson is this: sometimes, less is more. This whole exercise of rewriting or reproducing my old, discarded music was not a way for me to look back at my past self with scorn and at my present self with impervious adoration, claiming "Destination Perfect: Population Me".

I'm not even claiming that the music is objectively better now (the aspects of objectivity and subjectivity in music are a whole other conversation). This is just the lesson I learned that I felt helped me move towards making the type of music I feel best represents me.

No doubt I'm in danger of making these same missteps today unless I remind myself of this lesson. It's not like I am finished learning, growing, or improving. I don't think we ever finish doing that.

4

A Case Study In Creative Process

In this chapter, I'll cover three key musings on the creative process and decision-making behind the audio for a fantasy role-playing game project I waspart of. The game was called Elegos, with the first part set on the island of Phacos. The soundtrack, "Elegos: Storm Clouds on the Horizon" is available to listen to now.

My Creative Process

I'll be honest with you. I was not particularly looking forward to writing this chapter. I have a hard time talking about my creative processes and "Artistic Vision™", as if there is a great mutually exclusive dichotomy between some illustrious and fanciful creative mindset and the cold, logical, technical mindset. Any time I try to wax lyrical about why my music was written the way it was, it usually results in a smorgasbord of half-baked waffling, hyperbole, and pretension.

My default mode as an individual has typically been to execute and evolve a pragmatic, practical solution to a given problem, whether it's using a spreadsheet, a script, or a semiquaver to do so. Granted, with music and

sound design, there is the added element of evoking emotion and immersion in the listener. But, for me at least, the motivations and creative process behind my music compositions and sound design choices are not the result of me sitting in a darkened room, waiting for some divinely inspired bolt of audio-flavoured lightning to hit.

While I never stop trying to push myself and my capabilities, and the foundation of my creative work is constantly trying to pursue the dreams of what I want to achieve in a perfect world, I find that my most satisfying work is usually the result of understanding the goal of what the audio needs to achieve, the context of that, and the constraints in place (whether creative or practical). Then learning, trying new things, getting feedback, refining, and repeating.

Usual caveat that these are just my thoughts and opinions, which, like anyone, can change over time as I experience new experiences and learn and grow. I hope that somebody out there finds these insights useful, or if not, at least hopefully gives you some food for thought (that food probably being some kind of smorgasbord).

Reflection #1 - Making Sound Choices

Firstly, a little insight into our choice of sounds. To help evoke the feeling of being in a fantastical alternative version of Ancient Greece "where history and myth collide", we chose to combine three elements together to create an interesting musical palette for Phacos:

- **Ambient:** the inclusion of ambient music is a major component of the soundtrack. As well as helping to create an ethereal vibe, the absence of things like rhythm, melody and overt harmonisation has been utilised in conjunction with long-drawn-out pads to intentionally reinforce the idea that the player is placed in the world to explore without judgement of how

they should feel about being there (except maybe a bit unnerved!).

- **Ancient:** we also selected instruments associated with the ancient world, though not necessarily with ancient Greece itself. This once again helps us reinforce the game's fictional aspects, as well as the idea of Phacos as an unnerving, off-kilter version of the expected setting presented on the surface. Examples include Harps (ancient but not exclusively Greek) and a Yueqin (a Chinese lute from a slightly later period that adds a unique characteristic to the overall instrumentation).
- **Cinematic:** Bits and bobs of typical Western classical instrumentation were added in places to help elevate dramatic moments and create a more modern cinematic effect. Like some of the 'ancient' instrumentation mentioned above, they were often shifted, stretched, and manipulated beyond their real-life technical capabilities to blend in with the ambient instrumentation.

Reflection #2 - Less is More

I'm back with a solid reflection from a previous chapter! This topic is something that took me years to truly click with and is still something I have to regularly remind myself of. In my earlier years, I was desperate to prove myself as a composer, trying to jam-pack my compositions with as many instruments and grandiose musical ideas as possible. I equated complexity with quality.

In the years since, I've come to realise that my music is almost always more effective when I refine it by taking something away rather than adding to it. I've found a better question to ask myself is "what is the essence of what the game calls for here?". I have found that having the confidence to write a musical idea with intention and clarity, even if that composition itself is "simple"„ often yields the most effective results. In the case of the music for Phacos, this was always at the forefront of my mind, permeating through

the choices of instruments, the amount of instrumentation used, the use of melody, and even the choice of where to include music (i.e. would a given section actually be more conducive to the rest of the game if there were to be no music at all here?).

This carried through to the sound design and mix choices. The game is predominantly narrative-based, and so dialogue takes centre stage when it occurs. The narrative identity also informs the sound effect choices, whether it's incorporating fabric sounds as a layer in the jump sound effect to add gravitas or layering various ambiencesto create a calm-but-uneasy Mediterranean atmosphere. Including a maelstrom of sound effects and music during narrative elements could detract from the game's identity and core experience, and, in my role as sound designer and composer, I had the opportunity to approach the overall audio in this way. The idea of embracing simplicity in the name of clarity is exemplified through the piece 'Stairs to the Palace'.

Reflection #3 - Defining Done

Our Creative Director on the project reminded me of a quote attributed to Da Vinci: '*Art is never finished, only abandoned*'.

Given the creative freedom I was entrusted with for Elegos, this was crucial for me to keep in mind if I wanted to finish anything (whatever that word means). I can tweak and change things until the cows come home, but after a certain point, it is diminishing returns, and more value will be added by learning the lessons from a thing and moving on to something else.

I'm not talking about iteration; the ability to try something, refine it and repeat the process was crucial for me, but I do think it's important to keep myself in check by asking if hyperfixating on the minutiae of one particular sound

is really where I can add the most value. If not, maybe that's an indicator to move on to something else. Or at least to let something "bake", and come back to it later with a fresher (and arguably more objective) mindset.

I'm probably trying (and failing) to get across the point that for me, perfectionism doesn't always lead to a perfect outcome. I've found that such a mindset can be used as a crutch to justify never actually trying anything. As a composer, I don't think there's a destination called 'perfect music' that, if I just put thousands of hours into a single piece of music, I would eventually arrive at. If there is such a destination, the population certainly doesn't include me.

In fact, I almost called this section 'Good Enough is Good Enough', but I didn't want to create the impression that I'm just churning out Elegosian content that I myself think is mediocre. That's not the case at all. I am thrilled with the sound in the game.However, I'm constantly trying to balance pushing myself creatively with having a clear intention and executing it to the best of my ability, given the time and capabilities I have, to actually realise the objective.

After all, a released but "imperfect" soundtrack that people can actually listen to in and out of the game is actually more "perfect" than just a brilliant, award-winning daydream in my head. And in fact, it's actually the result of that iterative process that I find myself making any progress at all towards personal and professional growth, edging closer to that elusive perfect destination. Which, consequently, in my mind always remains in the distance even if I periodically look back and can see the distance travelled.

Summary

In summary, here are three reflections I made on the creative choices for this project:

- Define a sound palette and key areas that encapsulate the feel of your game.
- Do not assume that more will be better. Sometimes, less is more.
- Balance perfectionism with the pragmatism of actually finishing.

5

The Underrated Value Of Transferable Skills

I am a part-time Video Game composer and occasional Sound Designer. I typically work with small teams on independent projects, and my pipeline of work mostly arises organically, through the people I meet and friends I make.

As part of this, I have attended many industry talks and some conferences, and, on occasion, have perused audio role specifications in the traditional studio system. There is a repeated behaviour I see exhibited again and again. It has always perplexed me.

It's the numerous attempts to contrast working in games with "a normal desk job". The jibes at "being an Accountant", as if that is some kind of insinuation of someone lacking personality (this typically comes before the sage advice for Indies to hire one, by the way). The insular prerequisites of having shipped a number of AAA titles or having obtained "relevant experience" at a studio to be considered for a role.

It sounds as though I'm a bitter and cynical fellow; that's honestly not the case. I like to consider myself someone who approaches many things with a sense of levity and optimism. This isn't something unique to the games industry. It seems to permeate things like job specifications, the way conversations are

framed at networking events, and the natural emergence of seemingly specific acronyms and technical jargon that essentially boil down to the same thing, just in a different context.

Not Working In 'The Industry'

I said at the start that I'm a part-time composer. I have also had a career (both full-time and part-time at various points) in finance and data analytics parallel to this. This chapter is about the broader topic of transferable skills and how they are the bedrock of the way I personally approach anything professional.

Maybe you're reading this thinking about trying some new endeavour in your lifeand concerned that the ship has sailed and that it's too late because your skill set is fixed to a certain thing. I hope this chapter serves as a reminder that no one person is any one thing, and that transferable skills can be a fantastic gateway to many things we didn't think ourselves capable of.

A Typical Lifecycle

Here's a typical life cycle for me as a freelance composer (or at least what I try my best to do!):

- **I make friends and acquaintances** and take a genuine interest in what they're doing. Not because I'm vying for a gig, but to stay abreast of what's happening in various circles. You never know from whom, where, or when your next opportunity could come.
- When an opportunity arises, **discuss the work** with the client (i.e. the "vision holder" on the development team) to understand the project. What opportunities are there to add value?

- **Agree on the scope of work and the** general terms associated with that.
- **Communicate regularly.** Be responsive and engaged. This takes different shapes for different teams. It could be regular emails, joining Discord or Slack, and attending team stand-ups. As much or as little as adds value to the team's dynamic.
- **Take a proactive interest** in other aspects of the project. This could affect your work, but beyond that, there may be areas where you can add value, act as a sounding board, learn something new, or just offer your support in an informal capacity.
- **Create.** Explore solutions to the problems being addressed and produce the work. It's magnum opus time, folks!
- Invariably, **encounter problems and challenges.** From anywhere, for any reason. Break it down into constituent parts, and tackle it systematically, rationally, patiently and creatively.
- **Listen to feedback** with humility, openness and with a collaborative mindset. Understand the spirit of what needs to be addressed. Ask questions.
- **Iterate.** Rewrite. Start again if needs be. Keep collaborating until the vision holder is satisfied with the delivery, keeping in mind the agreed scope of work and the ultimate aim of adding value to the project.

With the exception of the sixth bullet above, which in my case is actually writing the music, these things can apply to an incredible amount of roles today.

Why Are Transferable Skills So Important To Me?

In my view, characteristics like effective communication, timeliness, reliability, proactivity, humility (doing what's best for a project rather than simply what is best for you), problem-solving when you haven't got a clue how to solve a problem, wanting to help others, and interpretive skills are all skill

sets that can bring an immense amount of value to a project. Whether or not you've shipped a specific something in a specific industry.

I'm not saying I possess all of these traits in spades. I am a work in progress like the rest of us. And maybe I'm wrong about this, but I'd wager that a composer who is good technically, who is communicative, reliable, proactive, open to feedback and who genuinely cares about projects and people is more likely to see a sustainable and rewarding career than someone who is technically phenomenal, but awful to work with, late, uncaring, and arrogant.

I don't think someone even has to change what they spend their time on to see the value in transferable skills. How often does something stay exactly the same? How much work is done in isolation without being a part of a team? Is any individual utilising their full capability doing one thing forever? It's not for me to say, but I can say for myself that by focusing on transferable skills, I feel more versatile and dynamic in how I approach any initiative.

Summary

I have a running joke with a friend that I'm two people. Finance Matt and Music Matt, with the two constantly in this push-pull battle for identity. But the truth is there's just one of me. Much of my skill set is interrelated, overlapping, and practically identical across the two roles.

I'm not saying that a specialism isn't important. It is. Specific technical proficiency is paramount to many roles. A solicitor (probably) shouldn't apply to be a surgeon the next day just because there may be some overlap in their skill sets.

What I'm saying is that in the current day and age (of "knowledge working", "professionalism", call it what you will), it would appear to me as though there

is so much overlap in what many of us are all doing. If we can see through to the substance of a skill set, beyond the context of how it was applied, we can open another avenue of inclusivity for ourselves.

Relevant experience is in the eye of the beholder. By discounting the value of transferable skills, we're effectively restricting our collective ability to work with a diverse range of people. To work with individuals whose skill set has been accumulated esoterically, solving problems in atypical ways using perspectives that haven'tbeen the culmination of self-referential systems. That sounds like a beautiful opportunity to me.

If you need a composer who loves spreadsheets, you know where to find me!

II

Introductory Guides to Navigating the Industry

6

10 Questions I Ask Myself When Pricing Freelance Game Composition Work

As a Freelancer, one topic that can often appear shrouded in mystery is the basis on which people calculate and quote their prices. I get it. Talking about money and your prices can be a bit awkward. Another factor is that we often shorthand price as a proxy for quality, with the perception that someone willing to work cheaply would provide low-quality work, and vice versa.

It's not an unreasonable assertion to make, but it does leave me wondering what folks are considering when pricing custom work? Are they simply quoting as high as they think they can reasonably get away with? As low as they can to try and land a project? What factors do they consider? In the game audio space, I've seen and/or experienced a variety of remuneration arrangements. For example:

- Fixed price
- Revenue share
- Cost per minute of finished music
- Hourly/Daily rate
- Combination(s) of the above

But even with these in mind, how do you price a number in the first place? As someone who has collaborated with single-person developers and larger development teams alike, I've had different considerations each time, which have affected the basis on which I price the work.

It's not one-size-fits-all because clients do not need the exact same thing from me on the exact same project in the exact same way. I'm not claiming that there is one right way to think about this topic, but I do think there are a number of questions that are sensible to ask oneself in order to have a consistent and sustainable career as a freelancer. Another caveat is that this is most likely geared towards indie game composing. Other areas of the freelance world (and even the music world) will have different practices, opportunities, and considerations.

Here are some of the questions I ask myself when pricing my work as a freelance indie game composer.

Question #1 – What Are My Monthly Costs?

The first step I take is to work out the monthly costs I need my freelancing to cover. This will vary from person to person depending on where you live and your specific situation. I keep a budget of what I consider to be a sustainable, comfortable life that takes things into account, such as:

- Living: Rent/Mortgage/Bills/Utilities etc
- Pensions
- Savings
- Operating Costs (for me, this could be pricing in regular software updates not attributable to any specific project).

Question #2 – What Assumptions Do I Need To Consider?

There are a number of general factors to take into account when making any sort of estimation, such as:

- Tax I will have to pay.
- Time spent pitching and being between projects. I use a fixed % estimation to factor this in. The uncertain nature of work is one of the main risks of freelancing. From a client's perspective, the flexibility of engaging with freelancers is an advantage, but that needs to be reflected in the price accordingly.
- An estimation buffer: a general fixed % on all of the above for any items not in my calculations that I may have underestimated.

Question #3 – How Many Hours Per Month Am I Able Or Willing To Work?

I have a number of other responsibilities in my life at the time of writing, such as looking after my children on some days of the working week, as well as growing Propulsion Games. Therefore, I need to work out how many hours I have available in a typical month for freelancing. This is a simple estimation of hours per month.

The answers to these first 3 questions can help indicate your default minimum hourly rate. But there will undoubtedly be additional factors to take into account.

Question #4 – What Costs Are Specific To The Project?

This could be anything, depending on the project's individual needs. As an indie game composer, these are the things that come to mind:

- The need to hire live musicians.

- The need to acquire a specific software licence that you do not have.
- Maybe even the need to travel or research.

Question #5 – How long do I think this work is going to take me?

I'm not sure if this is a contentious question to ask. It's certainly subjective. This can vary greatly, and (like many things mentioned above) will be an estimate, which should be additionally adjusted based on the estimation buffer I mentioned above. Some questions I ask myself here:

1. How much music is needed?
2. Is this in a genre or style that I am familiar with?
3. What level of instrumental complexity is there?
4. Is this a project I will be doing entirely solo via software, or will there be other work and collaboration involved to bring it to fruition?

We can use the answers from the above questions to then calculate a preliminary project price. At this point, we know the costs we need to cover, how many hours we have to cover them, and how many hours this specific project will demand of us. However, I then ask myself a number of additional questions to tweak this price up or down.

For the next questions, you could assign each a score from 1 to 10 and adjust the price by %, weighted by the score.

Question #6 – Am I excited to work on the project?

I don't know if this is a factor for others, but it is for me. Is this a project that you've just fallen in love with? Is it a passion project being self-funded? Does it have a small but dedicated team that you'd love to be a part of? Or is this just a project you're taking on because you're human and just need to pay the bills like everyone else?

Not all projects will draw you in equally, and it's a personal decision, but I have found it useful to ask either way.

Question #7 – Is there a likelihood this may lead to new opportunities?

This isn't one of those "*for exposure*" things. If people provide a professional service for a commercial project, they should be remunerated. End of. However, another factor I personally consider is whether this project has the potential to lead to an ongoing relationship that could provide additional opportunities and alleviate some of the time spent pitching between projects.

Question #8 – Have I worked with this client before?

If you've worked with them in the past and they were friendly, collaborative, reasonable, and professional, then I believe that is a factor worth considering because it changes the risk of an unpleasant experience from my perspective.

Question #9 – Do I retain rights and options to earn further from it?

This is a factor I take into account as a composer. For example, what licensing terms are being proposed? Is it work for hire, or can I instead offer a non-exclusive licence to use the music elsewhere? Do I retain distribution rights if I want to release a soundtrack of the music? Is there any potential to earn back-end royalties?

Question #10 – Is it a tight deadline, and am I turning down other work?

If you have to change plans, disrupt your schedule, cancel something you were planning to do, or affect others in order to accommodate working on a project, that may be appropriate to reflect in the price. Another factor is whether there are competing priorities for your time (which is a good problem to have in the freelance world!). This factor can be a consideration in your final pricing calculations.

Summary

The above questions help us to quote a price, and as mentioned at the start, this could be many things, ranging from a fixed price to an hourly rate to a price per finished minute (or a combination of these), taking revisions and scope changes into account as appropriate for the project.

Ultimately, my view is that whatever logic I use to come up with a price, it should be an amount that I am happy charging for such that a) I do not feel as though I would resent working through the (inevitable) challenges and changes as they arise, and b) I'm not creating friction and resentment within

a working relationship through unrealistic expectations on my side. It is a delicate balance, but once you have given these things the due diligence they deserve, you can establish clear expectations between you and your clients up front and then focus your efforts on the task at hand: doing an awesome job.

To recap, we've covered the following questions that I ask myself when pricing work as a Freelance indie game composer:

- What are my monthly costs?
- What assumptions do I need to consider?
- How many hours per month am I able or willing to work?
- What costs are specific to the project?
- How long do I think this work will take me?
- Am I excited to work on the project?
- Is there a likelihood that this may lead to new opportunities?
- Have I worked with this client before?
- Do I retain rights and options to earn further from it?
- Is it a tight deadline, and am I turning down other work?

Once you've taken the above into account, you have a price that reflects a number of considerations and is able to be substantiated.

7

An Introductory Overview of Mixing and Mastering

Are you looking for an introductory overview of mixing and mastering audio from a composer's perspective? Then you're in the right place!

I'll admit that I went years without properly prioritising this in my workflow. I knew my way around my digital audio workstation well enough to write a piece of music, and I knew what I was happy with in terms of the overall sound. But it was a good long while before I sat down and learned the core terms, effects, and general process behind mixing and mastering music. I am glad I took the time (and still take the time) to learn and practice these elements, as I feel they have improved the clarity of my music.

But before we dive into the overview, it's caveat time!

- **I am not an expert in this domain.** Mixing and Mastering engineers are careers in their own right. This is an introductory overview, so there will no doubt be things that are not included, or I've oversimplified. But if you're in the indie video game space like I am, I have found it's commonplace to have a solid working knowledge of these processes, since it's not guaranteed that someone else will be on the project to handle the

audio tasks.

- **A great job mixing and mastering cannot, in isolation, improve music that isn't working for you in the first place.** A clear structure and well-arranged instrumentation are paramount and will make the latter processes we're going to cover now much more effective. You'd be amazed at how spending time with the volume faders and the overall arrangement can work wonders.
- **I have intentionally focused on capability rather than specific tools.** There are tons of first- and third-party tools available that can achieve all manner of audio processing effects. However, when introducing topics, I believe in focusing on the spirit of the capabilities rather than the specific parameters of individual plugins. Therefore, I've focused on the core areas that I approach mixing and mastering from.
- **I have not structured this as a step-by-step guide.** This is because I personally learn best, particularly in music, when I am able to read about a concept and then go and explore it further myself. This overview aims to introduce you to various audio processes and techniques, in the hope that you are able to experiment with them and have their effects truly click when listening, in a way that words cannot adequately articulate.

So now that's out of the way, here's an overview of how I break my mixing and mastering process down into a few key areas. Let's start with some definitions!

What is Mixing?

Mixing is the process by which you craft your individual tracks within a piece of music to be cohesive and with clarity.

Let's take a brief step back.

When you think about it, the sounds we hear are not just one soundwave;

they're an amalgamation of *many* different waves, with their frequency and amplitude resonating harmoniously to form a unique sound quality. This is referred to as **timbre**.

Different instruments will all have their unique timbre and so will comprise different sound waves and occupy different points of the frequency spectrum. When measuring those frequencies, some will be low-end (20 Hz to 250 Hz), some mid (250 Hz to 4 kHz), and some high-end (4 kHz to 20 kHz).

Well, so what? If two waves occupy equal and opposite frequencies (one top of the curve, one the bottom) at the same point, then they will cancel the sound out entirely. This is called **phase cancellation.**

So if you have a load of different instruments in a piece of music and they are not mixed, then instruments with similar timbres occupying similar sonic spaces may create sound dips and give you a general sense of muddiness in the music. It is the job of mixing to remedy this by creating clarity so every part of the music can be heard as intended.

What is Mastering?

Mastering is the process of optimising the sound level of the overall music. It is the last stage in the production process. This is different in purpose from mixing, which is all about the right balance of sounds within a piece.

At its most basic, it is concerned with the overall loudness of the music and ensuring it is appropriate for its intended platform, while preserving the integrity of the mix. The amount of potential loudness the music has before it hits your target is called *headroom*.

When mastering, I am monitoring and targeting an average loudness (which I

measure in my Digital Audio Workstation via the '*Loudness Units relative to Full Scale*' - *LUFS* unit) that is in line with the requirements of whichever platform the music is being placed on.

Mixing - The High Level Process

There are an incredible number of audio tools available for mixing, and most DAWs have these processing techniques built in by default. I break down my mixing toolset needs into the following key areas.

#1 is Equalisation (EQ): This is boosting or removing parts of the frequency spectrum for a given track (i.e. instrument). For example, if you remove the high and mid-end frequencies of a sound, it can sound like it's underwater. Remove the lows and the mid-end frequencies and it can sound like a radio. You can use EQ to bring out some wonderful elements of a sound and completely transform it's character. I also use EQ to isolate the core timbre of the sound and remove frequency ranges that could be culprits for muddying the mix. You can utilise low-pass filters, high-pass filters, and surgical cuts to achieve this.

#2 is Compression: This is where the dynamic range of a sound is reduced by decreasing the volume of louder elements and boosting the softer elements. Most (if not all) compression plugins have thresholds and other parameters that let you control when the compression kicks in and by how much. *Multiband* compressors are ones that let you compress individual frequency bands within a sound, rather than the entire sound. Compression is a useful technique because it can eliminate unwanted peaks in a mix and, at the same time, provide clarity by bringing out elements of a sound that would otherwise be buried. However, overusing them can take the life out of an instrument, leaving it feeling bland. I always try to strike a balance.

#3 is Reverb: This will give a sound space. Literally as if it is in a variety of situations. Reverb effects can be algorithmic (i.e. artificially producing the sound) or convolutional (processes a sound based on the effect of sampling real-world spaces). Either way, they can add gravity and character to a sound. As with everything, I always try to strike a balance because too much can create the very blurry, muddy mixwe're trying to avoid.

#4 is Delay: an effect that adds an echo to a sound. When used rhythmically, it can also be an effective addition to the mix. Delay effects can be configured to echo the sound for different durations and at different levels.

#5 is ADSR ("Envelope") Shaping: ADSR stands for Attack, Decay, Sustain and Release, and the process involves modifying these four parameters to affect the characteristic of a given sound as it plays out over time. I always think about it in terms of playing a piano key. Attack is how fast a sound reaches its peak once it is triggered; it then 'decays' down to a specific sustained sound before fading away once your finger is released from the key.

#6 is everything else: This could include Chorus, Saturation, and more.

Mastering - The High-Level Process

The high-level process I use is to apply the following techniques as follows:

- **EQ:** I utilise EQ on the overall track via broad strokes and tiny tweaks in order to create the desired effect, for example a small boost in the low-end frequencies of the overall track.
- **Compression:** I utilise a compressor to slightly reduce the piece's overall dynamic range.
- **Widening:** a technique for increasing the stereo width of a sound. As the name suggests, it creates a wide soundstage.

- **Limiting:** This is another dynamic-related technique in which the volume is reduced at a certain threshold (or, in brickwall limiters, prevented from rising beyond that threshold).
- **Other audio processes:** for example, saturation (introducing warm-like harmonics into an overall sound), which I occasionally use.
- Every step of the way, here I am listening to the before-and-after impacts and bringing the overall level of the music up so that it does not distort.

The Mixing And Mastering Mindset.

Here are other things I keep in mind when mixing and mastering my work:

- **Spend more time on the source.** I know I mentioned this above, but I'm going to mention it again because it's *that* important! I always question whether what I'm doing in a mixing session is really trying to paper over the cracks of something that needs to be fixed in the arrangement of the piece itself.
- **Listen back.** For every change made during the mixing and mastering processes, I monitor the input and output signal levels at every step in the audio processing chain to ensure that overall music volume and fidelity remain optimal and do not introduce unwanted distortion. If it does, I'll adjust accordingly. This is referred to as *gain staging*.
- **Have an intention behind every decision.** I don't use EQ, Compression, reverb, etc, just for the heck of it. I always try to have an intent, know the tool that will achieve it, and apply it with that intent in mind.
- **Utilise automation.** If you're unfamiliar, this is setting your DAW to automatically change parameters while the music is playing so that you can control different amountsof different aspects of different effects during the course of the piece. For example, perhaps you want the level of reverb to increase for a specific part of your piece, but not throughout.
- **Let your ears rest!** I dedicate a separate session to mixing/mastering after

having composed the track. Taking that extra bit of time has helped me in the long run and allowed me to be clearer on how to approach mixing a piece.

Summary

We've covered definitions, the high-level process of mixing and mastering, and the mindset I adopt when performing these tasks.

If you get to the end of this process and you're encountering distortion, balance issues, or other undesired effects when you listen back to your music, it could be due to issues during mastering, mixing, arrangement, or a combination of these.

It's important to be honest with yourself about where the problem could be coming from. It may take time to go back and fix those underlying problems, but I have found that it's difficult to master your way out of a problematic mix or mix your way out of a problematic arrangement in the first place.

Keep exploring, learning, listening, and improving. Over time, you will find a workflow and a mixing or mastering process that works for you.

8

An Introductory Guide to Synthesis

As someone who loves blending electronic elements into their compositions, synthesised sound has become a core part of my creative process. The range of synthesisers (or "synths") available is immense ; each offering its own unique sounds and capabilities. Designing custom patches for these synths is an art form in itself, involving a deep understanding of synthesis techniques. Many composers (including myself) make use of the available patches created by third parties, but how are they designed in the synths in the first place?

As a side note: it's important to note that being a sound designer for synthesisers is different from being a "sound designer" in the video game industry, which focuses on curating, creating, and implementing sound effects for games. The two are related but distinct disciplines. It's a distinction I didn't fully grasp at first!

But I digress.

In this chapter, I will provide an introductory overview of the different types of synthesis and the core concepts involved. With so many software and hardware synths out there, I won't get into the specifics of any one model; instead, I'll focus on the fundamental ideas so you can apply them to whichever synth you

prefer. I use *Serum*, *Vital*, and *Massive*; but there truly is a *massive* amount of choice!

While this chapter may be quite concise, I think it's important to gain a foundational grasp of the core concepts so you can contextualise more in-depth online tutorialsand apply them to your specific workflow. Let's go!

What Does A Synthesiser Do And What Are The Common Types Of Synthesis?

In a previous chapter, I wrote about sound holistically:

> *The sounds we hear are not just a single sound wave; they're an amalgamation of many different waves, with their frequencies and amplitudes resonating harmoniously to form a unique sound quality. This is referred to as* ***timbre****.*

Synthesisers are essentially tools that facilitate the electronic generation and manipulation of sound. They all do this in their unique ways, hence why they are all capable of making a distinct timbre, but they will broadly fall into the below types of synthesis:

- **Additive:** created by adding multiple waves onto one another.
- **Subtractive:** sculpted by taking a sound and filtering it.
- **Frequency Modulation:** created by one waveform modulating another.
- **Wavetable:** cycled through pre-defined waveforms and modulation.
- **Other types** include *granular* (breaking sounds down into 'grains' and modifying them), and *physical modelling* (using mathematical models to simulate a physical sound).

What Are Some Of The Core Concepts Involved?

In the vast majority of synths, you'll notice that the interface will contain sections labelled with things like "Osc", "LFO", "Filter", "ADSR", and "FX", or similar. They relate to the following:

- **Oscillators** - these are the primary sound sources in synthesisers, generating repeating waveforms that can be modified. The parameters involved include frequency (hertz), amplitude, and waveform (for example, triangle, square, saw, and sine).
- **Filters:** where harmonic qualities are shaped to affect the sound (e.g. low pass, high pass, bandpass, notch).
- **Envelopes** can be applied to filters or oscillators, but either way, they essentially represent instructions of how to shape something over time. They are often described in terms of ADSR: **A**ttack (how quick a sound peak when triggered e.g. when a note is played), **D**ecay (how quickly the sound falls from the peak to the sustain level), **S**ustain (when holding the note down, what the "status quo" of the sound is), and **R**elease (when you let go of the note, how long until it goes back to silence). As an example, a pad sound may have a slow attack, whereas a pluck-type sound may have an almost instant one.
- **An LFO** (Low-Frequency Oscillator) is a type of oscillator where the frequency is so low it doesn't affect the tone but can still modulate the characteristics of other parameters used in the design of a sound.
- **Control routing** is also a core concept here. This is where you can connect different modulation sources (such as LFOs, envelopes, etc) to various parameters (such as pitch and filter cutoff). This is key to creating complex, evolving sounds. As an example, you can often link an LFO onto an oscillator so that a sound creates a wobble-like sound when played over time. Or you could do the same with a filter to create a sense of morphing when a note is played. Or both! Tethering different parameters to one

another, as well as adding more instances of these, will all contribute to creating a unique sound.

From there, different synths will have different features on how these concepts are displayed and interact with one another to form a unique sound. In addition, many synthesisers include features to incorporate traditional mixing techniques ("FX") such as compression, EQ, and reverb into a given sound. I've gone over these concepts in a prior chapter.

Summary

In this chapter, we've gone over what synthesisers do, their different types, and some core concepts involved. Don't forget that experimentation is key. Hopefully, you can see how modifying even just a few of the above parameters can create a diverse palette of sounds for your music.

9

An Introductory Guide to Sound Design

Sound Design is one of the most essential elements of a game's audio experience. It is a vast and intricate field. Search online, and you'll find countless articles on the technical and creative processes behind crafting a sound for a game- often from people with far more experience in this field than I have. As someone who didn't follow the traditional studio path and initially focused on composing music, I had several misconceptions about sound design before things started to fall into place and I began contributing to sound design in indie games too.

In this chapter, I'll break down what sound designers do, share some helpful resources, and explain key concepts to help you start your own journey into sound design.

What Does A Sound Designer Do?

A sound designer (also sometimes referred to as an *audio designer*) is principally responsible for creating, recording, or implementing audio elements such as sound effects that bring the game to life. This could be anything depending on the game in question. Play any game and listen to anything

aside from the music and dialogue; you'll be surprised at what you can hear. The weather. A footstep. Gunshots. Menus. If you can hear it, someone has designed it to be heard that way!

The responsibilities of a role can vary from one studio to another. For example, a sound designer in an AAA studio may be responsible for designing a specific category of sound effects, whereas in an indie setting, a sound designer could be responsible for all sound effects more broadly. You may see the role of "*technical sound designer*" advertised; these individuals focus on the more technical implementation and optimisation of the sound design, working closely with an audio programmer or engineer. In indie studios, it's common for these various responsibilities to be consolidated into one role.

A common misconception is that all sound designers record every sound they use themselves. In reality, the sounds created for a game can be sourced from a mix of existing libraries made specifically for sound design and the sound designer's own recordings. The value lies in the curation, selection and crafting of a sound tailored to fit the game's atmosphere, narrative, and gameplay.

It's also important to clarify that a sound designer in this context is different from someone who utilises synthesis techniques to craft an original sound for music. While there is some overlap in techniques, their purpose and workflows are distinct, despite them often, confusingly, both being labelled *sound design*.

What Are Some Core Concepts And Techniques?

When designing sounds, there are a few key areas I tend to focus on:

- **Aligning with visuals:** Let's start with one of the most important techniques: aligning your sounds with the visuals. If you have gameplay

footage available, you can experiment by playing your designs alongside footage without needing to implement them in the game right away. Taking note of the gameplay animations, both what's visible and what the player experiences, is invaluable. This approach allows you to incorporate experimentation and iteration into your workflow efficiently, ensuring that the sound complements the visuals in a meaningful way.

- **Thinking outside of the box:** sound design isn't just about reacting to what's on screen. Are you able to enrich the game's atmosphere without clashing with the narrative or creating additional development challenges? Sometimes, you could even *alleviate* some of those challenges. For example, in *Twisted Logic: Abbotsfield*, the entire game takes place inside an abandoned house in the middle of the woods at night. There is little light, and the player cannot see much outside. To enhance the sense of tension and isolation, I took creative licence and introduced subtle storm sounds. This added suspense to the environment without requiring additional development work to reflect it elsewhere in gameplay.
- **Layering:** Once you've decided *what* to reflect audibly, I've found that blending and layering sounds is a great way to achieve something unique. For example, you might combine the dissipating crackle of one clip and the low-end explosion of another, creating the perfect effect for your situation. Keep in mind that often, less is more. Sometimes *removing* layers from one of your designs can help bring clarity, rather than introducing more elements.
- **Processing:** Sound design involves many of the same techniques used in music production and synthesis, such as EQ, reverb, and panning. However, in sound design, these techniques are applied in a different context. Other techniques, such as pitch shifting, time stretching, and reversing, can also play key roles in crafting the right sounds for your project.
- I have found that a combination of all these factors, aligning with visuals, thinking about the wider experience, layering, experimenting, and iterating, is all key to crafting a unique and satisfying sound.

When it comes to implementing the sounds, this is a topic in its own right. There is so much more opportunity than simply placing the sounds in the game and calling it a day. For example, is a given sound "3D" or "2D"? If it's 3D, and therefore in a 3D game-world as opposed to something like a game-menu, how should the attenuation and panning act relative to the distance and position of the player? Is it a given sound looping or played as a one-shot? If it's retriggered multiple times, would variety in the sound add value rather than playing the exact same audio clip each time? If so, perhaps it could be part of a collection of clips associated with that sound effect, with each clip randomly pitched up or down to add variety each time the sound is triggered. Or maybe different considerations would apply to your project. There can be many.

It is worth noting that, in addition to the native features of game engines, it is common to utilise Audio middleware applications such as FMOD and Wwise to enable more dynamic and intricate sound implementation. There is a wealth of documentation and tutorials available online for using these.

Summary

This chapter covered what sound designers do and introduced some of the core concepts and techniques involved. This is really just the tip of the iceberg. Sound design is a vast discipline, with entire careers built around it. Hopefully, this has served as an introduction to the fundamentals, as well as key techniques and approaches for designing sounds for games!

10

Delivering Indie Video Game Voiceover On A Budget

I mentioned in a previous chapter that I worked as the composer, sound designer, and dialogue editor for an ambitious project called Elegos. This chapter is all about our team's journey to incorporate voiceover into the game, as well as some lessons learned.

It's no lie that Elegos was an ambitious project. Organising and delivering voiceover ("dialogue editing") for an open-world RPG is something you'd be forgiven for associating with AAA games, after all. And on top of that, like many things in video games, delivery of the dialogue in a game is often the sole role of an individual (if not an entire team of individuals). But being the ambitious lot that we were and not wanting to shy away from a challenge, we set ourselves the goal of seeing how we can best deliver a cast of voiceover to go alongside the wonderful work of our narrative designer, but within an indie budget.

Also, I'd like to just note that I would not be so bold as to claim this as a definitive instruction on exactly how to deliver VO in a video game. This is just what worked for us and the best practices that evolved for us as a team.

Whether you're an indie developer looking for some tips, a player looking for insight into our process, or someone who just wants to learn more about how the sausage is made (or at least *this* particular sausage), hopefully this chapter will give you some food for thought!

Part 1 - Preparation

This part is short, sweet, and utterly fundamental.

Start with the voiceover work once characters and narrative have been (*hopefully, largely, practically, optimistically?*) finalised. Any change to characters, scenes or dialogue could have frustrating and time-consuming consequences down the road. The good ol' 5Ps ring true for a lot of things, including here: *Proper planning prevents poor performance.*

Part 2 - Organisation

It's no secret that I love a good spreadsheet. Sure, writing epic music for an awesome game has its perks, but have you ever cracked a problem with a really good spreadsheet formula or found a needle in a haystack with a pivot table? *Eye-wateringly satisfying.*

I am joking, of course (*or am I?*). But spreadsheet skills have come in super handy when organising dialogue work. To help with our organisation, we created a tracker spreadsheet consisting of every single line of dialogue in the game, which we then reconciled in various ways to make sure we were consistent and intentional.

It's also worth noting that each line of dialogue had its own *unique* ID that

followed the pattern **Character_Scene_Conversation_Line**. Our spreadsheet consisted of the following tabs:

- **Details -** a line-by-line breakdown of dialogue in the game, including the ID, the dialogue itself, the voice actor(s) (VAs) voicing that character and a lookup to the labelled tab (see below) to flag whether or not that voice actor has delivered the line yet.
- **Labelled -** a breakdown of every file delivered so far, including the VA, ID, Filename, the scene and the character.
- **Summary -** where we bring the above two tabs together to show a summary by character, by status, and by VA.

So why go into so much detail here about a spreadsheet? Because it was a lifesaver for us numerous times. For example:

- Have we asked the same voice actor(s) to voice a character consistently if that character appears in multiple scenes?
- Have we checked which characters talk to whom in a given scene so that characters who interact with one another are not all voiced by the same VA?
- Do we know who we have briefed and what we have briefed them?
- Have we been delivered a file from a voice actor that doesn't necessarily label the file(s) in the convention that the game uses? We'll need an efficient way to listen, match it with a corresponding line of dialogue and label them accordingly.
- Every single dialogue ID should be unique and follow the naming convention. Do we have any instances of duplicates or typos that we can correct preemptively now to save time during quality assurance debugging?
- Hopefully, you can see how spending the time upfront, preparing and being organised can save you a ton of time, effort (and therefore money) down the line!

Part 3 - Direction

We worked with voice actors through the sites Fiverr and Voices. While that makes it accessible to those on a budget, it means we have to navigate through the challenges of working with actors remotely, on-site, and with non-real-time feedback.

One challenge we had to overcome as a team was where to draw the line between artistic freedom and micromanagement and overdirection. We want the voice actors to bring their own unique take to the characters, but at the same time, real-time feedback and in-person collaboration weren't possible to help contextualise the dialogue.

To that end, we place a strong emphasis on preparation and detailed briefs. Specifically, our briefs often included an overview of character profiles and motivations (for major characters), as well as additional character lines to provide context (where needed), and a Voice Actor direction key to signal emphasis.

In terms of feedback and iteration, there was no getting around the fact that it was a clunkier process than if we were all together in a room (even virtually!) and were able to quickly make multiple readings and iterate, but thanks to a combination of detailed briefing and excellent reads, we had minimal revisions for many characters.

A note here, too, that we specifically sought out voice actors with a Greek background to help ensure the authenticity of the setting in Elegos (albeit not from ancient Greece!). We are so pleased with the outcome and how much energy and originality the cast brought to the characters.

Part 4 - Post-Production

As and when the voice actors sent their deliveries, there was some work to do to ensure we ended up with consistent, individual voice clips corresponding to a given ID. Sometimes files were sent in different formats, or combined, or piecemeal. Often, there was no easy alternative but to listen to each file and, if necessary, chop it up and label it. When there are multiple characters, voice actors and briefs flying around the aether, is it the most enjoyable task in the world? Possibly not. And am I grateful to a teammate who rolled up their sleeves and offered a helping hand with this alongside me? I am.

We were also disciplined with our organisation for this (in case you hadn't realised that's *kind* of a key theme for us throughout this whole thing). We labelled the deliveries into the following folders, making sure we updated the almighty spreadsheet as we go:

- As received
- Labelled - before batch processing
- Labelled - after batch processing

This part of the process yielded an interesting discussion point. Had we paid a premium and/or asked actors to deliver lines of dialogue as individual files, would we have been more efficient compared to the effort it took to organise it our end? Possibly. Definitely a consideration as we scale content going forward.

Now onto the post-production processing itself. While the quality of individual deliveries was generally great, we still need to work to make them more consistent with one another, as well as additional post-processing to improve clarity where needed. For this, I utilised some incredible scripts in *Reaper* (and the *SWS extensions*) that enabled us to batch-import and export. This not

only saved us time but also provided a scalable solution, no matter how many individual dialogue clips we have.

Here is an overview of the main process in a nutshell:

- Import all of the chopped and labelled audio clips into Reaper. Have each VO/session as different tracks (the same VO/session will likely have the same processing applied on it initially, but it cannot necessarily be applied en masse across the whole dialogue population).
- Run a script called "*Xenakios/SWS: Create markers from selected items (name by take source file name)".* This will turn each clip into a region marker, with each marker named the same as the audio clip's filename (which, in our case, is the ID).
- Run another script called "*SWS: Convert markers to regions*"; this will turn each of those audio clip markers into regions within the Reaper project. The export section of Reaper can then be utilised to export one region (aka one audio clip) at a time, and if a wildcard of "*$region"* is used as the filename, then eureka! We have a way to export each individual audio clip from Reaper and have them automatically retain the same filename they were imported with. Let the batch work begin!

So what exact audio processing techniques did we do on the clips once everything was in Reaper?

- Utilised a gate effect so that only sounds above a threshold were audible in a given clip. This eliminated some of the subtle-but-noticeable background noise that may have been present in a given delivery.
- Tweaked the EQ, the exact details of which vary depending on the voice actor (and could even vary within a given actor's voice depending on the consistency of their recording from one session to the next). This essentially involves subtle (and sometimes surgical) cuts and bumps to the frequency spectrum to reduce/increase high/medium/low frequencies, giving the overall performance more clarity.

- Added some light Compression (this reduces the dynamic range of a sound so the overall levels are more even).
- Updated sound levels between actors/characters/deliveries to create overall consistency between all the clips.
- Made specific updates as required (for example, pitch shift to create a slightly otherworldly voice effect for a certain character, or toning down a specific clip, etc).

Once we were done with the above, we had a collection of audio clips ready to be implemented in the game.

Summary

In this chapter, I've dived into the dialogue-editing process we followed on an ambitious, multi-character role-playing game project I was part of. The lessons learned:

- Be organised in your planning and co-ordination
- Provide briefs, direction keys and character overviews
- Utilise batch processing and audio processing techniques
- I hope this was useful and you gleaned some insights into this challenging, rewarding, multi-disciplined task.

11

3 Key Questions For Implementing Music In Video Games

One of the things I love about making music for video games is that the composition and implementation are fundamentally intertwined. While the sound palette of a given composition may be influenced by factors such as a title's aesthetic and narrative tone, the structure of how the music is designed to be heard is an interesting topic in its own right.

As interactive media, video games offer a level of dynamism that's lacking in more linear media like film and television. This naturally raises several questions. What is the player doing? How long are they in a given area? Do they do the same thing in the same way every time? What can change?

In this chapter, I'm going to write about three questions I ask myself to address how my compositional approach could be affected by the intended implementation of the music.

Question #1 – What's The Gameplay?

I think this is one of the important questions. What does the player do? How does the game work? What's the gameplay?

This question can also help you find ways to amplify gameplay by incorporating it into your compositional approach. For this, I tend to think of the music in terms of a) loops and b) blocks (horizontal in the sense of the structure of the piece, and vertical in terms of the instrumentation).

For example, let's take *Rockets Are Super Hard*. In the game, "*you and your teammates must collaborate and tackle intricate puzzles to launch rockets*". The gameplay loop consists of tackling each stage of a rocket launch: from pre-flight to launch to flight to payload to success/failure. Each stage is looping through sequentially on a fixed timeline until the players succeed in the next stage, or fail and have to start again.

Therefore, my approach to the composition was to think of the music as a series of **horizontal** segments, with each segment on a loop and written so that it works musically when played in a loop by itself and also when transitioning from one segment to another. Given the game's timeline logic worked in whole seconds, I opted to write the music at 120 bpm so that the rhythm would play out in 'complete sentences'. You can listen to the soundtrack online. As an example, the track "Read It And Weep" is broken down as follows:

- 0:48 - 1:20 Pre-flight
- 1:20 - 1:30 Launch
- 1:30 - 3:06 Flight
- 3:06 - 3:28 Payload
- 3:28 - 3:39 Success

As another example, in *Orbitect* the core gameplay hinged more on the dichotomy between the more relaxed and cerebral "build mode", and the more

frenetic, roguelite "view mode". Both were in the same gameplay environment but served different purposes.

So, to keep the experience cohesive while adding to the distinctive sections, I thought of the music vertically and opted to have both modes share the same music, with build-mode missing any percussion. This immediately gave build mode a greater sense of calm and reflection, while still tying it to view mode for a cohesive overall feel. We implemented this by running both versions on a loop and muting one track based on the player's mode. This created an instantaneous change in the sound's vibe to match the gameplay. Not rocket science by any stretch, but still effective nonetheless!

Of course, these choices may not always need to be made. You may be writing music for a game where the gameplay is on a fixed timeline and/or makes heavy use of cutscenes. For these, you may not want or need to utilise loops or blocks at all and instead opt to implement linearly. Perhaps you're writing for some kind of rhythm action game where you need to focus on a series of stings all in the same key, playing one-shots (and not loops) depending on player actions.

Every project will have its unique challenges and opportunities. Whatever the project, understanding the gameplay will help you understand how to potentially approach the composition.

Question #2 – Where Is There Dynamism?

This looks more deeply into the gameplay to identify where the player experience could vary from playthrough to playthrough. This could introduce the opportunities for a reactive music implementation. Examples:

- Two games could have the same gameplay in the sense of "*you fight a boss*

battle". However perhaps one offers a deeper level of dynamism. I once worked on a demo project where we designed an adaptive music boss battle in which musical elements were introduced and/or emphasised based on the player's proximity to the boss, performance, weapon choice, health, and other factors. This created a unique music track for each playthrough, based on the gameplay's dynamism.

- Perhaps the game includes non-player characters who walk around the world with instruments. You could write music where each character plays their instrument, and the game's music is dynamic in each playthrough, assembled diegetically rather than existing outside the game world.

By looking at what could be different in each playthrough, in addition to the gameplay itself, you can unlock new opportunities for interesting music composition!

Question #3 - How Is The Game Structured?

While also related to the gameplay, this question is more focused on how the content is organised in the game. For example, does it consist of a series of distinct levels? Is there a world map? Is it an open-world game where areas blend into one another? Is it one consistent environment?

Maybe the game has a single environment that evolves. Your soundtrack could consist of music that changes horizontally in structure and vertically in instrumentation, as one long piece of music reflecting the changing environment. Maybe locations are important and location-based music has been written to reflect that. Music could fade in and out as the player approaches these locations. Maybe the game is a homage to retro platformers and has distinct levels which progress sequentially. Level-based looping music may have been utilised to reflect that (as was the case for me with *OAOA*).

Whatever the structure, all of these can present interesting opportunities for musical composition, whether linear, adaptive, or interactive!

Summary

I've focused on the design-related questions, all focused in and around the gameplay, of how I approach the composition, keeping the intended implementation in mind.

- What's the gameplay?
- Where is there dynamism?
- How is the game structured?

When it comes to the technical side of implementing this in the project itself, there's a range of middleware options available, such as FMOD and Wwise, as well as the native features of the engines themselves, such as *Unity*. There are even some exciting *dynamic implementation* developments in the industry that I think are truly transformative. But that is another topic in and of itself!

Hopefully, by thinking about the above and structuring your composition accordingly, you've already set yourself up for success and have a really clear idea of how your music is going to elevate the game it's a part of.

12

Understanding Music Royalties: A Composer's Guide

For many composers, the idea of creating a piece of music that continues to generate passive income long after it's been written, through royalties, is a dream come true. However, the world of royalties is complex and convoluted, and I think possibly a little overlooked in indie video game music.

In this chapter, I aim to simplify this topic. While I was already familiar with terms like "up-front" (before the music has been used) and "back-end" (after the music has been used), as I delved deeper, I discovered there are various types of music royalties, each relevant to different roles. Some of these are becoming increasingly important for video game composers. This chapter offers an overview of music royalties, designed to help fellow composers understand where they might be leaving money on the table.

When determining which music royalties might apply in a given situation, I usually ask myself two key questions:

- Who is playing which role in the creation and distribution of the music?
- What is the context in which the music is being used?

- These questions help me figure out a) who is responsible for paying what, and b) how the payments are made.

As always, this is not legal advice, but rather my best attempt to break down important terms and concepts based on my understanding. Since I'm based in the UK, this guide will have a UK-centric focus, but I hope it proves helpful wherever you are!

Who is playing what role in the creation and distribution of the music?

This is essentially exploring the copyright of a work, which is a topic in its own right. The roles that could be involved in a musical work can include:

- **The writers**: Those who write the music composition and lyrics.
- **The publishers**: Those responsible for promoting and marketing the compositions. They will also typically register them with collection agencies.
- **The record label**: The entity that facilitates the music's recording.
- **Recording artists**: performers who contribute to recordings.
- **The distributors**: Those who deliver recordings to outlets and platforms.
- **The platforms**: Stores and services where the music is available to listen to or purchase.
- **The production company:** Entities that develop a creative work, of which music would be used as a component.
- **The broadcasters**: Entities that broadcast the music to larger audiences.
- **The collection agencies**: Organisations that collect royalties on behalf of copyright holders.

What is the context in which the music is being used?

This could include a variety of situations, such as:

- **Broadcast** on TV, Radio, or even video games.
- **Streamed** via online platforms.
- **Purchased** through online download or physical copies.
- **Played live** at a venue.

Who is responsible for paying what?

This can get a bit complex, so buckle up. If you're a writer or publisher:

- **Performance Royalties:** These are paid by broadcasters and platforms to writers and publishers through collection agencies (*PRS for Music* in the UK). They cover royalties for every instance of music being broadcast, streamed, or performed publicly (e.g. in concerts).
- **Mechanical Royalties:** These are paid by broadcasters, platforms, and online stores for the mechanical reproduction of the composition. This includes physical copies, digital downloads, and streaming. These royalties are collected through the Mechanical Copyright Protection Society (MCPS), now merged with PRS to form PRS for Music.
- Typically, these royalties are divided into a 'writer's share' (for the writer) and a 'publisher's share' (for the publisher). Depending on the agreement between the writer and the publisher, the writer's share may also be shared with the publisher.

If you're an artist or record label:

- **Recording (Master) Royalties:** these are paid by platforms or stores every time a recording is streamed or downloaded. The royalties are then passed to the record label and artists via their distributor.
- **Public Performance Royalties:** these are paid to the record label and artists every time music is performed or broadcast (including non-interactive streaming, known as 'digital performance'). These royalties are collected through Phonographic Performance Limited**,** *PPL* in the UK.

Note that these latter two types of royalties are sometimes referred to as 'neighbouring rights'.

There is ongoing debate about the ethics and fairness of streaming platforms' payments to artists, but for now, I'll focus on the mechanics rather than the equity of the payments.

How is it paid?

Performance and Mechanical Royalties:

- **Collection agencies**, such as *PRS for Music* in the UK, negotiate terms with broadcasters and streaming platforms to receive a blanket fee. On a quarterly basis, these fees are distributed to writers and publishers based on when and where the music was played. The collection agencies determine the distribution using the following information:
- **Track Registration:** Publishers have registered the tracks with the collection agency.
- **Cue Sheets:** For broadcasts, production companies submit cue sheets detailing which music was used in a production and who the rights holders are.
- **Broadcast Details:** The broadcaster provides information on when and where a production was broadcast.

- Using this data, the collection agency allocates the fees to registered members. It's important to note that filing cue sheets and allocating royalties take time, so royalties may not be received for several months after a broadcast.

Recording (Master) Royalties:

- These royalties are typically paid directly by platforms to distributors, who then pass them on to artists and record labels in accordance with their agreements. Because these payments are data-driven, reporting and payments usually have a shorter turnaround time than broadcasting royalties.

Public Performance Royalties:

- This process is similar to performance royalties but managed by a different collection agency (*PPL* in the UK). PPL handles the collection and distribution of royalties for public performances and broadcasts of recorded music.

Examples

Some examples can help to clarify these concepts.

"I'm a video game composer who has just put out a self-published original soundtrack onto streaming platforms. I wrote and recorded everything myself."

- **Performing and Mechanical Royalties:** As the writer and publisher (since you've self-published), you'll receive performance and mechanical royalties periodically. These royalties will come from streaming platforms, and possibly from where the game itself is available (e.g. PlayStation).

- **Recording Royalties:** Since you also own the recordings, you'll receive recording royalties from your distributor, which you can often track through their platform.

"I've just released an album where I cover some of my favourite tracks. Recorded it myself. One of the tracks got played on the radio."

- **Mechanical Licence:** You need to obtain a mechanical license for the tracks you cover, as you did not compose the music. This ensures you have permission to reproduce and distribute the cover versions.
- **Recording Royalties:** You'll earn recording royalties from the distributor for your own recordings.
- **Performance/Mechanic Royalties:** These are not applicable given you have released a cover album, and not compositions that were written or published by you. The rightsholder(s) for the composition are entitled to them, however.
- **Public Performance Royalties:** Since the track was played on the radio, you'll also receive public performance royalties (via PPL in the UK) and distributed to you as the artist/label.
- Congratulations, by the way.

"I composed a track, and my publisher promoted it. It ended up being recorded by a band through their label and was featured in a film."

- **Performance Royalties:** As the composer, you're entitled to performance royalties. The exact amount and timing will depend on your agreement with the publisher and where and when the track was used. If the track was broadcast internationally, the royalties might be collected by foreign collection agencies and passed to the UK agency (PRS for Music), which then distributes them to you. This process can take time due to the various agencies involved and their periodic payment schedules.

- **Recording and Public Performance Royalties:** The band and their label will collect recording royalties for their version of the track. Public performance royalties for the track's use in the film will also be collected by PPL (if applicable), but these royalties are typically paid to the record label and performing artists, not the composer.

Other Considerations

The world of music royalties can indeed be complex, with many variables and potential "what ifs" depending on specific situations and agreements. Here are some key considerations for composers:

- **Registration with Collection Agencies:** To receive royalties, you must be registered as a writer with a collection agency (e.g. *PRS for Music* in the UK). Collaborating with a publisher typically requires registration as well.
- **In-House Compositions:** If you work for a development studio (for example), your compositions might belong to your employer. This can affect your entitlement to royalties, depending on the terms of your agreement.
- **Production Music Libraries:** If your music is in a production music library and you have a publisher, you might receive an upfront license fee ("**Sync Fee**") for synchronisation with moving pictures. This fee is paid by the production company, usually to the music publisher or sometimes directly to the collection agency (e.g. MCPS in the UK). This upfront fee is separate from back-end royalties and may be split with the publisher according to your agreement.
- **"Royalty Free" Music:** The term "royalty free" means that a production company only pays a one-time upfront fee to use the music in their content. It does not mean that the rights holder is not eligible for back-end royalties. Such royalties are still collected by collection agencies.
- **Roles of Companies:** Many companies offer a combination of services

such as distribution, publishing, and sync licensing. Others may specialise in just one area. Be sure to understand what services are provided and how they might affect your royalties.

- **Freelance Licensing Agreements:** If you work freelance, your licensing agreement might restrict you from using or reusing your music in other contexts. Be aware of these terms before signing any contracts.
- **Contributions:** If you've provided vocals or instrumentation on a hit song but didn't write the song and the label owns the masters, you may not be entitled to royalties. This depends on the specific agreement you have in place.
- **Covers:** When producing a cover song, you must obtain a mechanical license beforehand. You won't be entitled to performance or mechanical royalties for the original composition. Many distributors offer services to help you acquire these licenses.
- **Sampling:** this involves using parts of existing recordings in new works. This requires permission from the rights holders of both the composition and the recording, which from the overview you can probably guess might not be the same people. If you're using a sample library, check the End User License Agreement (EULA) for terms on how the samples can be used. Sampling an existing song involves a separate process and negotiation with all of the original rights owners, and is a whole other kettle of fish!

Summary

I aimed to make this as comprehensive yet concise as possible, acknowledging that music royalties are inherently complex. In summary, if your work is regularly broadcast or performed:

- **Understand your role:** Clearly identify your role in the creation of the music, whether you're a composer, performer, publisher, or a combination of these. This will influence the types of royalties you're entitled to.

- **Review agreements:** Carefully review any agreements you have with third parties, such as publishers, labels, or distributors. These agreements will determine how royalties are split and how you are compensated.
- **Register with collection agencies:** Ensure you are registered with relevant collection agencies (e.g., PRS for Music and PPL in the UK) to collectapplicable performance, mechanical, and public performance royalties.
- **Understand the Timing:** Royalties can take time to be processed and paid out. Be prepared for a lag between the earning of certain royalties and actually getting paid, due to the processes involved in collection and distribution.

13

Practicing A Musical Instrument: My Three Key Areas For Practice

Are you new to learning a musical instrument and looking for some approaches to structure your practice? Or are you a composer looking to form better habits for regular practice of your instrument(s) of choice? Then this chapter is for you!

Having had the good fortune and support to have piano lessons from a young age, playing the piano has stayed with me into my adult life as one of my most cherished pastimes. Learning to play a musical instrument develops a whole range of skills beyond the music itself. Because the prospect of learning the piano (and especially the world of Western European classical music) can be vast and daunting, I've put together an introductory guide for anyone interested in learning or structuring their practice but not sure where to start.

Everyone will have their own way of learning and practicing, and I'm not saying that this is the only or best way to learn (especially with the vast array of musical instruments and cultures across the globe) - but here is a high level guide to what I personally find useful as someone who plays and learns an instrument via western European music theory (I am also guilty of not sticking to this consistently myself, but I try to aspire to this nonetheless). I

find the key to constructive development through practice is a combination of constructive concentration, routine and enjoyment!

Let's say you have an hour to spend practising; this is where I would spend it.

Area #1 - Exercises (15 mins)

Just like in sports, warm-up exercises are a great way to prepare yourself for playing a piece of music (this is now officially the most I have written about anything remotely related to sports). Try the following:

- Start with a few octaves of *chromatic scales*.
- Pick a note at random and play the *scale*(s) of that note.
- Now try *arpeggios*. You can add variation by using a different number of octaves each time, varying which one/both hands you're playing with, as well as playing *syncopated*/ smoothly.
- Some people also find *Hanon exercises* useful for technique. The list of exercises are *available online*.
- Train your ear by practising *chord* structures. You can pick a note and interval at random (*Major*, *Minor*, *Diminished*, Augmented etc) and listen to how it sounds through various *inversions*.

Area #2 – Playing Pieces (30 mins)

This is the idea that playing through a variety of styles, genres, and eras of pieces through sight-reading is an effective way for many of us to learn, grow and enjoy playing the piano. Learning a piece is an iterative process (at least it is for me!), so repetition is key. Repetition is key. Here are some things that help me:

- Take a top-down approach: what are the patterns and phrases? What's the key? How do the melodies and harmonies interact with one another?
- Take a bottom-up approach: break the piece down into phrases or individual bars, and play them repeatedly and slowly until you are confident playing them at tempo. Focus on separate hands if needed. As you progress, patch all these phrases together, and the piece as a whole will take shape.
- As the ability to actually play the piece mechanically starts to coalesce, I like to think about the emotion and narrative behind it. What era was it written? What was the world and life in general like for this composer when the piece was written? Is there a story behind the piece itself? How do I want the listener to feel? What emotions do I want to convey as I play it?

It may seem pretentious, but this is my favourite part of playing the piano. It's actually personally more important to me than the ability to play the piece completely accurately. It's the difference between playing the *notes* and playing the *piece*.

Area #3 – Free Playing (15 mins)

I've put this last section as the final quarter-hour session, but honestly, for me this is always the biggest part of where I spend my time when I play the piano. It's this section that drew me towards being a composer (or maybe it was vice versa, who knows these things). Let your mind wander and just play whatever you want to. Here are some things I like to do:

- Pick a chord and start improvising an original piece. Experiment with inversions and progressions. If you like any element of what you're composing, start writing it down or recording it!
- Try playing melodies and chords from popular songs/themes by ear. You

can look up the notes or chords online, but deconstructing what you hear vs visually looking at what you're playing on the piano to make that sound helps me to connect the dots.

Summary

I structured this chapter into three sections: exercises, playing pieces, and free playing. But in my view, these are all interconnected.

Learning the exercises and music theory behind them helps you identify patterns in the pieces you're learning and, in turn, allows you to break a piece down into logical sections that you can practice in isolation and then combine to help with your ability to play the right notes at the right time. Beyond that, being able to play the piece mechanically lets you explore the emotional and narrative aspects further. It gives you the opportunity to explore history, experience new stories, and convey emotion to others.

If you're like me, the above can lead you to explore your own musical identity through compositions and to convey your thoughts and emotions through original music. I think this is true whether it's used as background music in a casual video game or front and centre in an auditorium to an audience of thousands.

Above all, enjoy the practice!

III

Resource Hub

14

37 Websites I Wish I Had Known About Sooner As A Composer

Trying to find that next great opportunity, programme or event for anything can feel daunting. I've definitely found that to be the case for music more generally. Let alone the niche of indie video game music composition.

We know that networking is great, but where to find the events? We know that mentorships are awesome, but where to find the programmes? We know that reading about experience is no substitute for actually experiencing, but where to find the opportunities? The truth (or at least what I've found to be the truth) is that there isn't one single place that will that be a point of professional enlightenment for you. Opportunities come from a variety of places, people, and moments.

With that in mind, I've compiled a list of various websites ranging from job sites to industry bodies, some more obvious than others, that *might* pique your interest and contain opportunities, events, or insights that you find helpful in your own unique journey as a composer.

Quick caveat/notes before we begin:

- I'm based in the UK so this is possibly, once again, a little UK centric.
- While I may be a member of some of these organisations, none of them are sponsors, and while I peruse many of these sites, I don't exclusively use all of them all of the time.
- I haven't included social media or online communities here. I have personally found LinkedIn to be useful, and I know that many of the places I list below have Discord (and/or possibly Slack) channels to connect with others.
- I also haven't included anything about sync licensing / production music opportunities. I do not work predominantly in that world, but librarymusicbook.com has an incredible and comprehensive book on the topic.
- Any opinion I tack on to this list are all my own views. Or they are to the extent that one can have truly individual views. Stay on topic, Matt.

Industry and Professional Associations

- ***Ivors Academy*** - the UK's not-for-profit professional association for songwriters and composers. They regularly host seminars, networking events and various other opportunities.
- ***Creative UK*** - an organisation supporting creative industries in the UK. They conduct a number a business development programmes across games, films, TV and other creative industries.
- ***BAFTA*** - an independent trade association that support, develops and promotes the screen-based arts - television, film, video games, or more!
- ***UK Interactive Entertainment (UKIE)*** - the trade body for UK games and interactive entertainment. They conduct a number of events and offer a number of resources to their membership. They are also the creators of the *games map UK*.
- ***Game Audio Network Guild (GANG)*** - a global (US-based) game audio community containing resources, programmes and awards.
- ***The Independent Game Developers Association (TIGA)*** - the trade associa-

tion representing the UK games industry, specifically indie developers. It contains educational resources, events, job opportunities and more.

- ***The International Game Developers Association (IGDA)*** - an international non-profit organisation for anyone involved in making games. Contains a number of events, resources and programmes to help further the advancement of the games industry and the folks working in it.
- ***British Council Music*** - receiving government aid but operationally independent from the government, the British Council has a music section with details on resources and support opportunities.
- ***Arts Council England*** - a government body dedicated to promoting the visual and literary arts in England. It contains a number of funding opportunities for those working in the creative arts.
- ***Association of Independent Music (AIM)*** - a trade body representing the UK's independent music sector. The site contains details on events, resources, opportunities, and jobs.
- ***Sound and Music*** - the UK's national charity for new music. New music can ostensibly mean contemporary classical, but given the sites states that they support "anyone who wants to make music and sound to shape the modern world", this could include game composers depending on the context!

Charity, Advocacy, and Support

- ***Help Musicians*** - A UK charity for independent musicians offering a number of support resources.
- ***Musician's Union*** - a community of musicians advocating for members rights. Can be a useful resource for funding guidance and rate standards.
- ***PRS Foundation*** - the UKs leading charitable funder of music (as per its site). Offering a number of opportunities and programmes to musicians, composers, and songwriters alike!
- ***Independent Society of Musicians (ISM)*** - the UK's largest representative

non-union body for musicians. Contains a number of informational and support resources for musicians and composers.
- ***The Vaughn Williams Foundation*** - according to its website, the foundation is "*a grant-giving charity which upholds the values and vision of the celebrated composer Ralph Vaughan Williams*".

Jobs

- ***Composer Jobs*** - this is an aggregator site that posts various jobs and opportunities across the globe that may be of interest to different composers or people working in the audio space for generally.
- ***The composer's Site*** - similar to the above site, this site aggregates various composer related opportunities from around the globe.
- ***Work with Indies*** - a job's board aimed specifically at folks working in indie games across various disciplines.
- ***r/INAT*** - the "I need a team" subreddit contains a community of people who are seeking others to work with on their project. Sometimes this could be for a paid position (or revenue share), a game jam, or a passion project.

Education and Mentorship

- ***Video Game Ambassadors*** - a network of industry professionals dedicated to inspiring and mentoring the next generation of games industry professionals.
- ***Limit Break*** - a mentorship programme for underrepresented people working in the UK games industry.
- ***Game Audio Learning*** - a fantastic learning resource for those new to the game audio world, and contains a substantial mentor directory.

- ***Into Games*** - empowering the advancement of individuals in the games industry at various stages of their career. They offer a number of training programmes and seminars throughout the year, as well as various other events.
- ***Creative Access*** - as per their website, they are the "*UK's leading inclusivity organisation in the creative industries".* They offer a number of career support guidance.
- ***The Associated Boards of the Royal School of Music (ABRSM)*** - a music examination board in the UK. It offers a number of teaching and learning resources, particularly geared toward those looking to more formally qualify as a student or teacher in a musical area.
- ***Ludomusicology*** - a slightly more academic angle, but a resource dedicated to the scholarly study of game music.
- ***UK Music*** - according to their site is "*a British umbrella organisation which represents the collective interests of the production side of UK's commercial music industry*". It contains various policy, education and research resources. If that sort of thing floats your boat!

Publications and Editorial

- ***Composer Magazine*** - music and soundtrack related articles and interviews with composers. By Spitfire Audio.
- ***Game Developer*** - news, features and development blogs specifically centered around the video game industry.

Conferences and Networking Events

- ***Develop*** - the UK's biggest annual games conference. Great talks, great for meeting (and making) friends. There is also a free day pass for indies which includes some talks and access to the expo.
- ***Game Developers Conference*** - one of (if not, the) biggest games conference in the world. An annual conference in San Francisco, it offers a number of talks and networking opportunities. Their *YouTube channel* has some great talks available to watch!
- ***Gamescom*** - Europe's largest Games conference held in Germany.
- ***GameSoundCon*** - a game music and sound design conference in Burbank, California. For those of us who can't make the journey they also offer an online pass to listen in on the talks from the (many) industry professionals who give talks!
- ***Global Game Jam*** - if you're new to the world of indie game composition, game jams (essentially making a game from scratch over a defined period of time - usually a couple of days) can be an excellent way of getting experience of working with others, adding to your portfolio, and enjoy the process of making indie video games. The Global Game Jam held once a year is a great example of this.
- ***Ludum Dare*** - another very popular game jam that's held throughout the year around a particular theme. Some of my most cherished memories of making music in a team are from this particular game jam!
- It's worth mentioning that many local cities (including my own) have local meetups! ***Meetup*** can be a good place to find these.

Summary

While there is no singular place that will tell you everything that you may be interested in, hopefully the above resources will be a great starting point to find that next opportunity or event to attend.

15

Incredible Free Sound Design Resources

There are various industry-standard applications and resources available for sound designers that I've found useful over the years. I'll summarise them below:

- ***Reaper*** - an open-source digital audio workstation (DAW). It's free (though a professional licence can be obtained), and features a vast array of scripts and macros to manipulate sound in numerous ways. It has quickly become my go-to application for sound design and audio post-production more generally.
- Audio middleware applications like ***FMOD*** and ***Wwise*** allow for more dynamic and intricate sound implementation. These tools offer standardised integration approaches with game engines, saving developers from having to re-engineer sound systems with each new project. *Note that these are free or paid depending on various factors. Always check!*
- ***MeldaProduction*** offers a huge range of excellent (and many free!) production tools, such as reverb, compression, EQ, and more, that can be utilised with any accompanying DAW.
- If you're looking to start building up your sound library, ***Sonniss offers a monumental vault of free sounds*** with new additions released annually in celebration of the Games Developer Conference (GDC). ***Boom Library*** and ***Asoundeffect*** are also great sources for high-quality sound effects. *As*

always, make sure you read and understand the End User Licence Agreements (EULAs) to ensure you're using the sounds appropriately and within the allowed usage rights!

- For those looking to build a sound design portfolio, ***Reel Talk***, a Twitch show by folks at Power Up Audio, reviews the sound design portfolios that individuals send in. It offers valuable insights into industry expectations from seasoned professionals.
- **The Sound Architect** and **The Sound Business Podcast** are two podcasts featuring audio professionals throughout the gaming world that I have found useful to dive into periodically. Some great listens!

Summary

In this short and sweet chapter, I've suggested some amazing free sounds, tools, and podcasts available for those interested in developing as sound designers.

16

6 Incredible Free Music Theory Resources

Having a solid foundation of music theory knowledge has served me well as an indie video game composer. I'm not claiming that music theory is an essential toolset to have "lest you have the audacity to define yourself as a composer at your peril" or something. I would ascribe a more fluid definition to what a composer is or isn't. But for me personally, music theory knowledge has served as a bedrock for understanding the logical principles behind things such as:

- Why combinations of notes can be pleasing or displeasing to the ear.
- How to evoke a certain feeling in a music composition.
- How to structure a piece of music to give a specific sense of direction.
- How to write music so it can be played by others.
- Provide a vernacular to help articulate my own musical preferences.

I am a firm believer that learning is a lifelong pursuit. While I never attended a music school (though I was fortunate enough to take a few music theory exams as part of my childhood piano lessons), I've continued to do my best to keep learning about the concepts and techniques that comprise music theory.

I'm by no means an expert, but I am constantly challenging myself to keep learning. Here are 6 of the best resources, in no particular order, that I've

discovered to help you on your music theory learning journey! Note that these are all largely centred around Western European classical music theory concepts because that's my personal frame of reference as a composer.

Resource #1 - Music Theory for Musicians and Normal People - Toby Rush

http://tobyrush.com/theorypages/en-uk/

Something I aim to do with all my writing is break down technical concepts into clear, concise, down-to-earth explanations so that audiences unfamiliar with the subject matter can still get value from it. This eBook embodies this principle. Created by Music Educator & Technologist Toby Rush, this book is self-stylised as "Real college-level Music theory, from fundamental concepts to advanced concepts presented in a convenient, fun, engaging and thorough one-topic-per-page format". It contains topics such as:

- Notation
- Scales
- Key signature
- Intervals
- Cadences
- Form
- Counterpoint
- Much, much more!

It is the single most well-articulated, down-to-earth guide on classical music theory I have ever come across. A work of art in and of itself. Incredibly, it's free to copy, share and enjoy!

Resource #2 - muted.io

https://muted.io/

Introducing itself as a "*magical collection of interactive music theory tools & visual references to learn music online for free*", this website is a veritable cornucopia of interactive music theory tools. It includes dozens of individual interactive tools, such as:

- A cheat-sheet for keys, scales, modes, notes, chords and intervals
- Scale finder
- Interval calculator
- Scale degree referencer
- Cadence guide

It goes beyond classical music theory and has resources useful for music production and analysis too. And from what I can see, all developed and maintained by a single individual. Incredible.

Resource #3 - Open Music Theory

https://viva.pressbooks.pub/openmusictheory/

If you're looking for a comprehensive eBook that serves as a best-in-class undergraduate course guide on music theory, then look no further than Open Music Theory. It even includes assignments! You can download it as a PDF or read it directly on the website.

Resource #4 - musictheory.net

https://www.musictheory.net/lessons

This website is an invaluable resource, with a stronger focus on interactive lessons and exercises to help with classical music theory. The lessons cover a wide range of topics, including some of the areas I've mentioned above. It also has an iPhone/iPad App to assist with remote learning (presumably in case you don't fancy having a laptop on your lap while trying to play an instrument!).

Resource #4 - IMSLP.org

https://imslp.org/wiki/Main_Page

This is the International Music Score Library Project - an online repository of public-domain music scores. I know this one may seem a little odd to include amoung music theory resources, but I have found it fascinating and invaluable for my own learning to see how music theory concepts are actually used in compositions throughout history.

Public domain means a creative work can be freely shared and downloaded. What constitutes the public domain varies between countries, but in the UK it is generally 70 years after the composer's death. Therefore, there is a vast wealth of free scores available to download and play from the baroque, classical and romantic eras. That's hundreds of years' worth of music, and hundreds of thousands of individual pieces available to look at and analyse. IMSLP also has a free app (for iOS) to search, download and store these musical scores. A fantastic resource!

A related shoutout to Mutopia.org - similar to IMSLP, with the key difference being digital recreations of public domain music (in a generally cleaner PDF format) rather than a scanned PDF public domain version like IMSLP. Also great!

Resource #5 - YouTube

I know, it seems obvious.

But sometimes, the obvious can be overlooked! YouTube is a fantastic resource for short and long-form video content on all kinds of topics, and that's true for music theory too! Here is a selection of YouTube channels connected with music and composition that I find insightful:

- ***12tone*** - music theory from an eclectic range of places!
- ***Nahre Sol*** - An incredible pianist-composer who covers a range of music topics, including an analysis of the composition style of various composers.
- ***Austin Wintory*** - an incredible video game composer who posts great content on YouTube, in particular his "as-noted" series, which gives a series of insights and commentary alongside his compositions.
- ***Andrew Huang*** - focused on electronic music and production, but something for everyone who is interested in music and composition.
- ***Adam Neely***: informative video essays and vlogs on all things music-related.
- ***Listening In***: informative video essays on various classical music-related topics.
- ***David Bruce***: an eclectic mix of videos on various topics connected with classical music.
- ***Rick Beato:*** expands beyond music theory into guitar and more contemporary music, but it is insightful to anyone looking for an analysis of various

musical topics.

While not all of these are always dedicated wholly to music theory - and some accounts are no longer posting regular content, I always find something insightful here whether it's theory, songwriting, composition, production or some other music-related topic.

Resource #6 - Wikipedia

Another resource that is so ubiquitous and obvious it could easily be taken for granted!

Wikipedia is often my first port of call for learning about a topic such as music theory. I maintain that despite the risks of vandalism, bias, and in-expertise, its crowdsourced, freely available, citation-based contribution of information is one of the best resources that humanity has ever produced. Long may that continue.

Here are a couple of articles which can easily branch out into anything you might want to learn about!

- *Music Theory*
- *Musical scale*
- *Musical symbols*

These are just examples - you'll be up to dozens of tabs in no time, I'm sure!

Summary

In this chapter, I've detailed 6 free music theory resources that have benefitted me as a composer:

- Music Theory for Musicians and Normal People - Toby Rush
- muted.io
- musictheory.net
- MSLP.org
- YouTube
- Wikipedia

Some of these are more obvious than others, but I've found that they all offer an interesting opportunity to learn something new and can go a long way to enhancing your understanding and creativity in your own musical journey.

17

Navigating Classical Music - Where To Start?

Since I was a child, I've had a fascination with classical music. It exists at this weird kind of crossroads between artistry and arithmetic, evoking emotions in the listener while also containing structures, patterns, and its own unique logic.

With the vast quantities of music available to listen to in this space, literally spanning centuries, in addition to the demographically stale perception the world of classical music has, you'd be forgiven for being daunted and dissuaded from approaching it. I've spent years listening to and learning from classical music, and even I feel that unspoken impenetrable pretentiousness masquerading as unassuming homages to tradition and artistic expression. Culturally, it still gives me a visceral association with the upper echelons of society, inaccessible to the rest of us.

But setting those factors aside (as I mostly do) for now, researching these eras and the lives of composers across centuries, I am almost always rewarded with interesting insights into history, the lives of artists, and the pursuit of creative endeavours.

Eras And Some Of Their Composers

The umbrella term 'classical' encompasses a number of eras spanning four centuries or so. For newcomers interested in classical music but unsure where to start, I wanted to provide a brief overview of these eras and some of the composers from those periods. Note a couple of things about these lists:

- When I reference 'classical music', I'm referring specifically to the Western/European part of the world. That generally seems to be the assumption, but I wanted to be clear because other parts of the world had music from these time periods too!
- This is not an exhaustive list of the best and only classical composers to listen to. I have tried to include composers with varying levels of household-name popularity, but ultimately these listings should serve as nothing more than a springboard as you begin discovering the characteristics of the music you like and explore further from there.
- I included a selection of contemporary classical composers, but I do think there is a case to be made that film, TV, and video game composers (especially those writing music in an orchestral capacity) also deserve to be recognised as contemporary (or as a contemporary consequence of the past classical eras). But that is probably another topic in and of itself!
- 'Eras' didn't exactly fall neatly and sequentially. They are more based on characteristics than on a specific year, and so they're something that emerged over time and blur into each other. Therefore, there are instances of some composers who wrote music spanning two eras.
- As a pianist, I suspect my selections are biased towards the piano.

Renaissance (c1400 - c1600)

This period of time pre-dates the Common Practice Period (Baroque, Classical and Romantic, typically referred to as 'Classical'), but began to lay the foundation for many things which would be commonplace for European classical music in the centuries that followed; things like polyphony (independent musical lines), harmony, melody, rhythm (the relationship of which is referred to as 'counterpoint'). Crucially, it firmly established music as a form of self-expression.

If I were to (over)simplify things, I typically associate this period with the churches, with organs and recorders playing important instrumental roles. A selection of notable composers includes:

- Thomas Tallis (1505–1585) (England)
- William Byrd (1543–1623) (England)
- Carlo Gesualdo (1566–1613) (Italy)
- Claudio Monteverdi (1567–1643) (Italy)

Baroque (c1600 - c1750)

Harpsichords and Wigs! Tonality and harmony continued to be used extensively, marking the beginning of the Common Practice Period. This period established things in music that are a given today, for example, music being written in a certain key.

I associate this period with an almost mathematical complexity in its structure and melodies (often having multiple melodic lines played simultaneously). Some notable composers include:

- Henry Purcell (1659–1695) (England)

- Alessandro Scarlatti (1660–1725) (Italy)
- Antonio Vivaldi (1678–1741) (Italy)
- Johann Sebastian Bach (1685–1750) (Germany)
- George Frideric Handel (1685–1759) (Germany)

Classical (c1730 - c1820)

Classical is lighter and less "complex" than Baroque music (favouring homophonic form i.e. one clear line of melody). The piano replaced the harpsichord as the main keyboard instrument during this time, introducing a world of possibilities with the ability to play loud and soft. The role of the orchestra continued to grow in scope. A selection of composers includes:

- Joseph Haydn (1732–1809) (Austria)
- Joseph Bologne Chevalier de Saint-Georges (1745–1799) (France)
- Muzio Clementi (1752–1832) (Italy / England)
- Wolfgang Amadeus Mozart (1756–1791) (Austria)

Note that many of the early romantic composers listed below were transitional figures between this era and the next.

Romantic (c1800 - 1900)

The Romantic era took everything from the Classical era and introduced elements that made the music more individualistic, dramatic, and emotional. Sometimes in accordance with the boundaries of established traditional forms, and sometimes against.

- Ludwig van Beethoven (1770–1827) (Germany)

- Franz Schubert (1797–1828) (Austria)
- Hector Berlioz (1803–1869) (France)
- Fanny Mendelssohn (1805–1847) (Germany)
- Felix Mendelssohn (1809–1847) (Germany)
- Frederic Chopin (1810–1849) (Poland)
- Robert Schumann (1810–1856) (Germany)
- Franz Liszt (1811–1886) (Hungary)
- Giuseppe Verdi (1813–1901) (Italy)
- Richard Wagner (1813–1883) (Germany)
- Clara Schumann (1819–1896) (Germany)
- Johann Strauss II (1825–1899) (Austria)
- Johannes Brahms (1833–1897) (Germany)
- Camille Saint-Saëns (1835–1921) (France)
- Pyotr Ilyich Tchaikovsky (1840–1893) (Russia)
- Antonín Dvořák (1841–1904) (Czech)
- Edvard Grieg (1843–1907) (Norway)
- Leos Janáček (1854–1928) (Czech)
- Edward Elgar (1857–1934) (England)
- Giacomo Puccini (1858–1924) (Italy)
- Ethel Smyth (1858–1944) (England)
- Gustav Mahler (1860–1911) (Czech)
- Claude Debussy (1862–1918) (France)
- Richard Strauss (1864–1949) (Germany)
- Jean Sibelius (1865–1957) (Finland)

As above, many of the early 20th-century composers listed below were transitional figures between this era and the next.

20th Century (1900 - 2000)

European/western music diverged in the twentieth century, with numerous styles and movements, to the point where there was no dominant style as in the above eras. On the "classical" side of this, there was impressionism and neoclassicism within this era. Electronic, jazz, and rock music became mainstream influences for Western composers in this century, as did composing for media such as film, television, and video games! A selection of composers includes:

- Erik Satie (1866–1925) (France)
- Amy Beach (1867–1944) (United States)
- Ralph Vaughan Williams (1872–1958) (England)
- Sergei Rachmaninov (1873–1943) (Russia)
- Arnold Schoenberg (1874–1951) (Austria)
- Charles Ives (1874–1954) (United States)
- Maurice Ravel (1875–1937) (France)
- Samuel Coleridge-Taylor (1875–1912) (England)
- Béla Bartók (1881–1945) (Hungary)
- Igor Stravinsky (1882–1971) (Russia)
- Anton Webern (1883–1945) (Austria)
- Edgard Varèse (1883–1965) (France)
- Alban Berg (1885–1935) (Austria)
- Florence B Price (1887–1953) (United States)
- Nadia Boulanger (1887–1979) (France)
- Sergei Prokofiev (1891–1953) (Russia)
- Lili Boulanger (1893–1918) (France)
- William Grant Still (1895–1978) (United States)
- George Gershwin (1898–1937) (United States)
- Francis Poulenc (1899–1963) (France)
- Aaron Copland (1900–1990) (United States)
- Dmitri Shostakovich (1906–1975) (Russia)
- Olivier Messiaen (1908–1992) (France)

- John Cage (1912–1992) (United States)
- Benjamin Britten (1913–1976) (England)
- Witold Lutosławski (1913–1994) (Poland)
- Margaret Bonds (1913–1972) (United States)
- George Walker (1922–2018) (United States)
- György Ligeti (1923–2006) (Hungary)
- Pierre Boulez (1925–2016) (France)
- Morton Feldman (1926–1987) (United States)

Contemporary Classical (1945 - Present)

Modern post-tonal music that branches into expressionism, aleatory, atonality, serialism, minimalism, and, more recently, post-minimalism. An evolution (arguably an antithesis in my opinion) of some of the musical boundaries that came before. A selection of composers includes:

- Iannis Xenakis (1922 – 2001) (Romania)
- Karlheinz Stockhausen (1928–2007) (Germany)
- Harrison Birtwistle (1934–2022) (England)
- Arvo Pärt (1935-) (Estonia)
- Steve Reich (1936-) (United States)
- Philip Glass (1937-) (United States)
- Kaija Saariaho (1952-) (Finland)
- Oliver Knussen (1952–2018) (Scotland)

Summary

In this chapter, I've provided an overview of the Renaissance, Baroque, Classical, Romantic, 20th-century, and Contemporary classical eras that comprise the umbrella term "Classical Music". I hope this is a useful starting point for anyone wanting to dive in and listen to more music from these eras!

18

Closing Thoughts

If you've read this far, you may be scratching your head at the myriad seemingly disconnected topics that appear as though they veer so far away from indie game composition that you're not even sure why they're in here. A spreadsheet analysis of years of compositions? A guide to synthesis alongside music royalties? How to coordinate voiceover as a freelancer on a budget? Practising an instrument? The history of classical music?

In all honesty, that's because this is what the last decade has felt like for me. Being an "indie game composer" has meant learning different things, in different disciplines, using different skills, for different projects, with different people, and for wildly different levels of pay. Sometimes technical. Sometimes creative. Sometimes interpersonal. What starts off as writing music often branches into other audio tasks, and sometimes beyond audio altogether. I've learned about myself, about what I enjoy, and what I am capable of contributing to, both creatively and technically, for something as wonderful as indie games.

I look back on the last decade with bewilderment as to what "success" even means when you embark on a creative endeavour such as being an indie game composer. The only constant for me has been the intrinsic joy of the moment-to-moment work. And I think that's as close as I'll ever get to feeling as though

I am *successful* at it. That's enough for me.

I hope these bits and pieces help you find moments of joy in your journey too.

About The Author

Matt is a music composer, sound designer, indie game developer, and former governance and data analytics specialist. Based in his hometown of Southampton, UK, he enjoys life with his wife and two daughters, revelling in dad jokes, and writing in reverie about a range of things. Check out more of his work at mattjavanshir.co.uk.