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SCHOOL OF MUSIC

MODERN INDEPENDENT COMPOSITION AND PRODUCTION

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This thesis focuses on a number of examples of completely independently composed and produced pieces of music, intended to demonstrate the extent of democratization of art in society. Long ago, music was a luxury that could only be enjoyed by the highest economic class, but today music consumption is ubiquitous, and its means of production are becoming increasingly accessible as well. How close can an individual come today to replicating the work of the most successful commercial sound studios in the world? How successful have designers been in producing tools that allow each person to accurately portray their individual level of talent? A journey through the songwriting process will help us evaluate these questions.
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SONGWRITING

A songwriter is a person who writes both the words and music for a specific arrangement. Those who write only the words are referred to as lyricists, and those who write only the music are called composers. Though each individual is free to take their own path, most songwriters roughly follow the same four major steps in order. First, they put down the skeleton of the song. This is typically done with a “songwriting tool” (guitar or piano), which is versatile enough to handle chords, melody, and harmony simultaneously. Chords, lyrics, rhythms, and melodies may be notated as the artist sees fit. Next, a detailed arrangement is constructed, adding intricacy to the skeleton which has been created. This will specify which instruments play exactly which notes at a certain time, and attempts to “fill out” the sound of a song. That is, the songwriter wants to make sure that the listener is surrounded by a good quality of tones in the low, middle, and high ranges at almost all times – otherwise the song may sound weak and empty. Third, the writer will find a performer, sometimes himself, to record playing the song. Technology on this front varies wildly over person and time, but the most common avenues of recording today are microphones and MIDI input, which allows for easy manipulation of digital representations of audio information. Finally, the writer or audio engineers will mix the song, making sure that the sound quality is as high as possible throughout the song, and that the volume is appropriate for the music’s intended use. Players at different parts of this process can often work simultaneously, and a song can go back and forth between the steps of this process indefinitely until the artist is satisfied with the product.

For most of the modern era, the success of a songwriter was largely controlled by powerful record companies, and in some areas this is still the case. Writers in Nashville work from 9:00AM until 5:00PM in an office building crafting songs for record companies who act as
their patrons, having agreed that anything they write during that time can only be published and produced by that company (Harker, 2010). Other companies offer specialized consultants for every specific step of the creative process just listed – songwriting, arranging, recording, and mixing (“Retro Studio Team,” 2004). Much of the music that an average person would hear on the radio is produced in this manner. Committees of writers work together to design hit songs with infectious melodies and rhythms, audio engineers use the newest technology to make innovative sounds and effects, composers are hired to add depth and originality to the piece, and so on. Perhaps the most famous icon of this style of production is thirty-eight-year-old Swedish songwriter Max Martin, who has written over two hundred songs in his career, including nine top-ten singles in 2008 alone – which is not the first time he has accomplished such a feat (Baltin, 2009).

The playing field is quickly being leveled by diffusion of technology and information, however. In a movement spearheaded by the company Avid, more and more musicians can afford to access high-quality recording and mixing tools through their flagship program named Pro Tools, thus allowing their songwriting and arranging skills to separate them from the crowd, rather than the economic forces supporting them. Famous examples of lone producers include Imogen Heap, probably best known for her song _Hide and Seek_, and an artist with the stage name Owl City, best known for his song _Fireflies_.

The remainder of this thesis will briefly walk the reader through the songwriting process of six songs I have independently produced, with heavier focus on the notated music found in the third chapter and the audio files available as accompaniment. Through this, the reader should hopefully have an understanding of how far individual songwriters have come in terms of production value, and how much farther is left before equality with studios is reached.
FOUR INTO SIX

Thematically, this song is my attempt to turn four years of college into six minutes of music – which seemed to be the lower limit of what I felt would be appropriate length for a song taking on this task. I tried to make each section of the song reflect one of the two moods that had dominated my college experience – the first is frenetic and chaotic with just a thread of stability, and the second is ethereal and fleeting. The first feeling is found mostly in the verses and chorus, and the second tone is explored with a style referred to as “shoe-gazer” in the bridge and final verse. This type of music utilizes a minimum of percussion, deriving its feel from multiple layers of distorted electric guitar lines and equivalently distorted bass guitar lines, typically accompanied by a number of meandering vocal parts. To add to the feeling of instability, I chose to write this section in a Lydian mode, meaning that it starts on what would typically be considered the fourth tone of the scale. This gives the section a feeling of tension and shakiness, as if it is always ready to move, but never resolved once it gets there. By contrast, most songs start on the first or sixth scale tone, which are both seen as stable starting/ending points.

As far as production techniques are concerned, I concerned myself particularly with the balance of sound side-to-side in this song. In particular, I wanted to make sure that the spoken word parts in the verses and chorus would constantly go from left to right, to make the listener constantly divert their attention from one place to the next, imitating the sensation I felt on a broader scale throughout university. To do this, I recorded two separate readings of different sections of the script, starting each line a set number of samples apart. Once recorded, I simply had to offset one recording by half than number of samples, and then modify each track to go to exclusively the left or right speaker, leaving sound alternating from side to side constantly.
HITS AND MRS.

This is actually the only song that I have ever finished recording which someone specifically asked me to write. My sister was arranging her wedding in late 2010 and because she was having a small ceremony that took place outside, she knew it would be impractical to get a traditional wedding band or quartet. Largely foregoing music, she asked if I could write a song for her and my father to walk down the aisle to. I was not very confident in my ability to write something she would be willing to accept, but it was for her wedding, so I had to do my best. Not being particularly well-versed in music theory, she asked me to write something that was “flowing” and “sweet” that had “a flourish at the end, so people will know that it’s over.”

So I set to work. Going on her requests, I decided that I should probably write the song primarily in a minor key – starting on the sixth tone of the scale – because I find it very easy to draw up emotional melodies in that framework. Others have similar luck with major keys, but I always find them overbearingly joyous, and Lydian keys are too unstable. To satisfy her request for a “flowing” sound, I made sure to keep the melody quite slow (something akin to the pace at which she would walk down the aisle) and made sure that a note would be struck on every beat and halfway through each beat for almost the entire song. This prevented any syncopation or faltering in rhythm and expectations. Finally, I indicated the end by abandoning the low register and slowly climbing to the high register, which people commonly expect to denote an ending.

A production technique that you may notice in this song is how precisely the rhythms have been executed. Recording software now includes options that will correct for small deviations from a perfect timekeeping on the part of the performer, allowing for a tight and accurate attack for each note. Though nearly impossible in the past, MIDI technology has made this an extremely easy adjustment even for novice music editors.
DIFFERENCE

This song is another reflection on my time at college, though significantly more lucid in both atmosphere and lyrics than *Four into Six*. In particular, the verses of the song concentrate on the difference between what most university students would consider a worthwhile activity and what I consider fun, and the chorus focuses on the difference between my experience in college and my experience in the town where I grew up. Though it is clear in the lyrics which one I prefer, I do not mean to cast judgment on either set of conditions – I simply mean to state which one is more in line with the way I prefer to experience the world.

The composition, arrangement, and instrumentation of the verses were designed to give a feeling of solemnity and disenchantment. In particular, I thought that the use of a Lydian mode focusing heavily on its raised fourth tone (the signature of this mode) could help here, and that a relatively dark and rich combination of piano and deep strings would be the best vehicle for this, with the more nimble piano taking care of the quickly moving/repeating ostinato. To enhance a feeling of anger or disappointment, I decided to write the chorus in a minor key and added a relatively harsh electric guitar, which complimented the mood I was aiming for.

Volume control was of particular interest to me in this piece. As one can hear as the song goes on, there are multiple points where near-silence, extreme volume, and a quick contrast between the two is of utmost importance. While a professional studio with experienced engineers and excellent equipment is usually able to do this after some time, I found this task to be almost impossible. The microphone that I used has a very high signal-to-noise ratio, meaning that as I increase its volume in the recording software, more and more static is noticeable – the same kind of sound quality you might hear from using speakerphone at maximum volume. In this case, I had to choose in each instance between proper volume and clean sound.
HUNDRED MILLION

This song is about a girl, which – as a songwriter – I am not proud of and actually just a little bit ashamed to admit, but it is the truth and there is no avoiding it. However, I tried to keep the song less personal and focus instead on the more general feelings of regret and missed opportunity that my memories of said friend evoke, which I found not only makes for a better and less embarrassing song, but also helped me think about the situation in more the way that I wanted to. For reference, I met this particular girl the summer before my senior year of high school, and while it was extremely clear that we got along fantastically – so clear that her best friend quite explicitly told me I should ask her to be my girlfriend – I never said anything because I knew we were headed to universities hundreds of miles apart, and one year did not seem like time enough to make it worth it. As this song shows, that was a decision I regretted.

I would like to point out one of the great things about production technology I have left to the side thus far, and that is the amazing array of digital instruments available to the writer, and the ease with which one can use all of them. In this song, the listener can hear vocals, two pianos, a string quartet, a bass guitar, a full drum set, and orchestral percussion. Formerly, this arrangement easily run into the tens of thousands of dollars, but today one could buy all of the equipment I used to make this song for less than one thousand dollars. Even better, most musicians will have a majority of the equipment already (keyboard, computer). More importantly, the method used to sound all of these instruments is the same – the writer hooks their electric keyboard up to the composition software, plays along with the electronic metronome, and simply chooses which instrument should play the notes entered. While this does have some limitations – pianos are poor for pitch sliding and other interesting techniques – it is tremendously more effective and easier than learning and acquiring all instruments needed.
HIGH ON THE FEVER

My mother’s roommate from college was so close to her (and by extension, to my family) that we simply called her our aunt, and we called her only child our cousin. In the early summer of 2003, when he was seventeen years old, there was a strong rainstorm in his home town of Scranton, Pennsylvania, which filled a nearby river with rushing water. Though he did not actually want to participate, he went with a group of friends and waited on the banks with some of them while others swam in the river, which they all knew to be dangerous and forbidden. One of them began screaming for help, saying that another boy had been swept down the river toward some rocks and had not come back up. My cousin jumped in to try to save him, and so did the first boy who had screamed for his attention. After a few seconds, the boy beneath the rocks had been freed by my cousin. He was swept down the river with the other potential rescuer, too fast for them to do anything even though they noticed my cousin had not resurfaced. They screamed for help again, and more friends jumped in, but by the time they found him it was too late. He drowned, pinned under the water in a small cove which he could not escape, a few yards from where he had freed his friend. As the years went by after this, my aunt’s marriage with my uncle fell apart, he stopped going to work, he cheated on her, and eventually he divorced her. He had a fatal heart attack less than a year after the separation. It was the night of my discovery of his passing that I wrote this song, with their whole family in mind.

While it may be difficult for others to accept that songs can be written essentially in a night, many great songwriters agree. One famous writer said, “if [writing] became an arduous task where I sweated and toiled and struggled, I would drop it. [It] would show its toil and sweat and that wouldn’t be good for the song. The sturm und drang would be evident” (Zollo, 2009).
SNOW AND LIGHTS

When I was younger, I was certainly much more of an idealist than I am today. I assumed that the group of friends that I had grown up with since we had ridden tricycles together would be able to withstand distance and separation, and that when we came back for summers and breaks, things would be just like they always had been. I would still be able to talk to my best friend for hours about anything; two other girls would claim they were married to each other even though they fought relentlessly, and so on. But things did not turn out this way, nor anything like it. As the years passed, it became more common for me to ask, “So have you heard from this person?” and the response to be, “No, we don’t really talk anymore.” Some people became addicted to drugs. Some had legal trouble. Some had to move with their family. Some got too involved with their new lives, and some just did not want to remember their old life.

In this song I tried to capture the idealism that I once had and hold it in stark contrast to the way things turned out, especially with the realization that I was at least complicit in these events. Aside from lyrics, I tried to accomplish this by avoiding any instruments with a sharp attack in this song, which meant abandoning my primary instrument (piano). I wanted to create an airy and seamless feel by concentrating on legato string parts and breathy wind instruments. I also attempted to capture the sound of wind to be used as a background motif, to imitate something rushing by and going unnoticed before you were even aware of it, though this proved to be slightly more difficult than I had imagined. One production capability that the listener might notice here is the writer’s ability to duplicate and modify their own voice. With old technology this would have been impossible or difficult, but today artists can build an entire choir of just their voice, or modify their own voice multiple times to give the illusion of a large number of different performers.
SHEET MUSIC

From here, the sheet music of all notated instrumental parts will be given for each song to allow the reader to see exactly how much depth can be put into one song by just one writer. Audio samples of the song are also available, so the listener can follow along.
Four into Six

Jeffrey Conway

Piano

Dist. Bass

Dist. Guitar

Elcc. Guitar

Drums
Hits and Mrs.

Jeffrey Conway
**Evaluation: Individuals vs. Studios**

Now that the reader has seen and heard the work that an individual can do, we are better prepared to evaluate the abilities of studios and lone writers in the world of music production. Can an individual come close? Can one get the same song quality, production quality, and sound quality that a profession studio can achieve?

In short, I believe after doing this that the short answer is no. As democratized as the arts become, there are still high-end practices alive in almost every field, including music. Though individuals now have easy access to tools that can make them sound like professionals from just a decade ago – or even like current professionals to an untrained ear – there are still barriers to “fair” competition. Full studios typically have numerous processors dedicated solely to music editing and processing, allowing them to finish work significantly more quickly, including adding effects to enormous numbers of tracks. They also typically have more expensive versions of the software, with fewer limitations on design and a broader range of effects and instruments. Lastly, they are staffed by people who dedicated their entire livelihood to learning about and then practicing this exact activity. They are specialists, and to expect an individual to fully compete with them seems almost unfair.

However, that is not to say that there is no room for lone writers in the music scene. When working alone, the writer is more free to experiment and to showcase their own unique style without having to worry about appeasing superiors with established styles. Two examples of this have been mentioned before – Imogean Heap and Owl City – and famed DJ “Girl Talk” would also probably never have achieved success had he started with a professional studio. In general, an environment where individuals can come close in their experiments, which are then adopted on a wider basis, seems to be a positive setting for advancing music.
Bibliography


Professional Profile

- Mathematical training and interests include competitive problem solving, number theory, encryption/decryption, statistics, probability, and operations management
- Artistic training and interests include classical and modern piano, modern percussion, modern guitar, modern voice, and varied styles of composition
- Computing languages include Python, C++, Visual Basic, BASIC, R, SAS, HTML, CSS, and MATLAB
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Education

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- Jabir Shibley Memorial Mathematics Scholarship
- Institute for Shipboard Education Academic Merit Scholarship
- Eberly College of Science Braddock Scholar

Publications