

Lo-Fi Recording: A Historical Exploration of the Sound and Genre

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Abstract

This paper explores the history of the term “lo-fi”. Originating in the 1950s, lo-fi was considered the inverse of hi-fi, which was an acronym for high fidelity. Hi-fi represents sound recording and monitoring that accurately captures and reproduces acoustic sound. The two primary standards for hi-fi were bandwidth and SNR. Prior to the 1980s, lo-fi was limited to a sonic description of recordings with limited bandwidth and unfavorable SNR. Genres such as home recording, DIY, and outsider music had lo-fi characteristics, in large part due to the recording process used. The association between lo-fi and the aforementioned genres manifested into lo-fi becoming its own genre in the 1990s. The term lo-fi became interchangeable with home recording, DIY, outsider music, and slacker rock. However, with lo-fi’s decaying popularity in the twenty-first century, the term went through another metamorphosis. In the 2010s. This time, lo-fi was associated with artificial vinyl sounds, hip-hop beats, and YouTube livestreams.

<i>Introduction</i>	3
<i>Bandwidth</i>	5
<i>Signal-to-noise-ratio</i>	7
<i>Enhancing Audio: The Magnetic Era</i>	8
<i>The Recipe for “lo-fi”</i>	9
<i>Home Recording</i>	10
<i>DIY: R. Stevie Moore</i>	12
<i>Outsider Music</i>	14
<i>Lo-fi becomes a genre</i>	16
<i>Slacker Rock</i>	17
<i>Untangling the mess</i>	19
<i>The New Canon</i>	20
<i>The Lost lo-fi</i>	24
<i>Lo-fi aliases</i>	26
<i>Conclusion</i>	28
Bibliography	30
Appendix	37

Introduction

What is lo-fi? According to Spotify, it is “chill beats” and “head nodding grooves.”¹ Looking up lo-fi music on YouTube will pull up music with descriptions such as deep concentration and mind-calming.² A quick search on other music streaming platform will yield similar results. In contrast, Wikipedia’s article on lo-fi music defines lo-fi in a much different way. Mentioning artists like the Beach Boys, Paul McCartney, and Beck, the article describes lo-fi as DIY (do-it-yourself) music recorded at home (2024). Notably, Wikipedia makes a disclaimer at the beginning of its article on lo-fi-music, stating, “Not to be confused with Chill-out music, Lofi hip hop, or Slacker rock.” Wikipedia’s clarification has several implications. First, it acknowledges the existence of multiple genres derived from or related to the term “lo-fi.” Second, it highlights the confusion surrounding the definition of lo-fi, suggesting that lo-fi is often misunderstood or applied inconsistently. Lastly, it addresses a linguistic nuance—the distinction in spelling between “lo-fi” and “Lofi,” which represents different meanings of the terms, as I will discuss.

Despite being a DIY lo-fi artist, I was first introduced to the term “lo-fi” through the Lofi Girl YouTube channel.³ The livestream, which featured a loop of an anime girl studying in her room with beats in the background, was the soundtrack for my online COVID-19 class study sessions. Launched just a month before the outbreak of COVID-19, ‘lofi hip hop radio’ quickly became the go-to study music for students worldwide (Lofi

¹ See, for examples, these Spotify playlists that contain descriptions of lo-fi music:
<https://open.spotify.com/playlist/37i9dQZF1DXdLK5wjKyhVm?si=03c9e379e0634077>
<https://open.spotify.com/playlist/37i9dQZF1DWWQRwui0ExPn?si=697a7b36488641f5>

² See, for example, these YouTube videos that contain descriptions of lo-fi music:
<https://youtu.be/amfWIRasxtI?si=3Eb5kbZZMKP5RmtZ>
<https://www.youtube.com/live/EQqj7TMqfYM?si=vLpK9Aca-Y1KAthv>

³ This channel can be found at: <https://www.youtube.com/watch?v=5qap5aO4i9A>

Girl 2020). The loop of the anime girl studying in her room resonated with students confined to their homes, as it mirrored the remote learning experience during the pandemic. With over half a billion streams on its original live stream, the success of the Lofi Girl channel turned hip-hop and jazz lo-fi into a coffee shop and study room staple.

In 2022, I began listening to artists like Elliott Smith and Duster, who were labeled as lo-fi. Shortly after, I discovered modern artists such as Sign Crushes Motorist and German Error Message, whose intimate sound was reminiscent of the 1990s lo-fi I had started listening to. The contrast between the “Lofi” (sic) I had discovered during COVID-19 and its softer, older counterpoint puzzled me. One seemed rooted in hip-hop sampling, anime aesthetics, jazz chords, and synthetic vinyl effects, while the other was characterized by intimate home recordings, soft vocals, and analog warmth.

Further investigation showed me that the term “lo-fi” has been redefined multiple times. One of the most thorough explorations of this evolution is Adam Harper’s dissertation *Lo-Fi Aesthetics in Popular Music Discourse*, which examines how the meaning of lo-fi shifted from the 1950s into the early 2000s (2014). In his dissertation, Harper begins by admitting that before conducting his research, he thought the understanding of lo-fi was “more or less stable” (2014, 2). However, his findings revealed that the term had been applied in various ways and contexts, making it difficult to pinpoint a single definition. Harper’s work, published in 2014, predates the widespread popularity of Lofi music during the 2020 COVID-19 pandemic, which complicates the matter further. The global rise of Lofi has blurred the lines, making the definition of lo-fi even more ambiguous. This raises an enduring question: What exactly is lo-fi, and what elements must music possess to be considered lo-fi?

Bandwidth

Before “lo-fi” evolved into a recognized music genre, it was understood as a concept tied to sound fidelity (Harper 2014, 7). As Harper explains, lo-fi was first used in music discourse in contrast to the term “hi-fi” (2014, 7). H.A. Hartley, the founder of Hartley speakers, writes in his *Audio Design Handbook* that he invented the term “high fidelity” in 1927 “to denote a type of sound reproduction that might be taken rather seriously by a music lover” (1958, 200). By the early 1950s, there was a “High Fidelity industry” fueled by postwar “music lovers,” referred to as “audiophiles” (Olson 1996). The term “lo-fi” never had to be defined because its role as the complement to hi-fi was “easily suggested” and understood (Harper 2014, 7; Neal 2022, 32).

The high-fidelity obsession of the 1950s took place in the magnetic era, the third era of recorded sound (Burgess 2014, 16-29; Harper 2014, 7).⁴ The two eras leading up to the magnetic era were the acoustic and electrical eras (Burgess 2014, 16-29).⁵ Recordings during the acoustic and electrical eras of sound were limited in bandwidth (Burgess 2014, 16-32; Lindquist 2024).⁶ Bandwidth plays a crucial role in sound identification, as humans rely on specific frequency ranges to recognize sounds. In particular, the human ear can hear only frequencies from about 20 Hz to 20,000 Hz (Tedeschi 2023). In the acoustic era, the bandwidth of recordings was limited to approximately 250 Hz to 2,500 Hz (Lindquist 2021). The electrical era was an improvement, during which time recordings typically had

⁴ The magnetic era of sound lasted from 1945-1975 and has been established as the third era of sound out of four (Lindquist 2021).

⁵ the acoustic era took place between 1877-1925, and the electrical era followed, lasting from 1925-1945.

⁶ Bandwidth represents the range of frequencies in a song.

a bandwidth of 60 Hz to 6,000 Hz, but this frequency range still fell significantly short of high-fidelity expectations (Lindquist 2021). For example, H.A. Hartley wrote in 1932 that “a high-fidelity system should be 32 to 9000 cycles” (1958, 202).⁷

This analysis gives a clear indicator as to what metric was being used to define hi-fi. By using bandwidth as an indicator of fidelity, Hartley stayed true to fidelity’s definition. Merriam-Webster defines fidelity as “accuracy in details” (Merriam-Webster 2024). The smaller the bandwidth, the less accurately sound is captured (Lindquist 2021). Hartley’s initial benchmark for hi-fi bandwidth (i.e., 32 Hz to 9000 Hz) reflected the technological constraints of the time. By 1958, however, advancements in audio reproduction made his earlier standard seem “preposterously low,” according to Hartley himself (1958, 202). Lindquist writes that recordings during the acoustic era were low in fidelity and suggests that the electrical era fell somewhere in between. (2024). The magnetic era, in Lindquist’s words, provided a “dramatic leap in audio fidelity,” allowing for recordings with “much higher fidelity than ever before” (2024).

With these innovations came an obsession with “assembling and maintaining cutting-edge high-fidelity sound systems” (Harper 2014, 7). In his dissertation, Harper finds “a number of times” when the term lo-fi was used during the mid-twentieth century, but never with a definition attached (2014, 7-8). However, a quotation found by Keir Keightley exemplifies the reigning opinions of audiophiles on lo-fi in the mid-twentieth century. Keightley references *Newsweek*’s 1957 report, in which the editor suggests that “hi-fi fans made an important distinction between ‘lo-fi’ and the real thing” (Keightley 1996, 153). This distinction highlights how, in the mid-20th century, lo-fi was perceived

⁷ 1 cycle per second is defined as 1 Hz.

as a relic of past technological limitations, overshadowed by the growing high-fidelity culture.”

Signal-to-noise-ratio

The prevailing understanding of lo-fi as the complement of hi-fi persisted until the late 1970s (Harper 2014, 7-11; Schafer 1977, 272). In 1976, “lo-fi” was formally defined for the first time in the *Oxford English Dictionary* as “sound reproduction less good in quality than hi-fi” (Harper 2014, 11). While this definition captures the consensus on lo-fi, it lacks supplementary information regarding bandwidth and other sound characteristics. Composer and writer R. Murray Schafer expanded the concept of lo-fi in his 1977 book, *The Soundscape*, in which he defines lo-fi as, “an unfavorable signal-to-noise-ratio.” Applied to soundscape studies, a lo-fi environment is one in which signals are overcrowded, resulting in masking or lack of clarity” (Schafer 1977, 272). Included in his definition is both his primary interpretation, as well as lo-fi when applied to a soundscape.

Within Schafer’s glossary, he includes descriptions of all the terms above (1977, 271-5). Signal, referred to as “Sound Signal” in the glossary, is “any sound to which the attention is particularly directed (1977, 275). In contrast, he defines noise as unwanted sound, unmusical sound, loud sound, and disturbance in a signaling system (Schafer 1977, 273). In this context, Schafer defines the ratio of signal-to-noise as the relationship between the intended sound, which captures the listener’s attention, and any interfering noise (1977, 272-5). An unfavorable signal-to-noise ratio means that the recording device is either not picking up enough signal, picking up too much noise, or a combination of both. According

to Schafer, the ultimate lo-fi soundscape would be one where the ratio is ‘one-to-one,’ meaning that the signal and noise are equal in loudness (1977, 71).

Schafers’s definition of lo-fi is also placed in the context of a soundscape, which Schafer defines as “any acoustic field of study” (1977, 7). Schafer lists examples—such as musical compositions, radio programs, and acoustic environments—as soundscapes (1977, 7). In the context of acoustic environments, Schafer describes lo-fi as “an overpopulation of sounds” (1977, 71). In the same way that buildings, forests, and crowds can limit the distance that people can see, lo-fi acoustic environments limit people’s abilities to hear depth and subtle sounds (Schafer 1977, 43). Despite differing approaches, Schafer and Hartley converge on the understanding that high fidelity relies on both optimal bandwidth and an acceptable signal-to-noise ratio (or “SNR” for short).

Enhancing Audio: The Magnetic Era

With the introduction of magnetic era technology, both bandwidth and SNR limitations were solvable. Background noise was lowered by 10 dB in 1940 (Burgess 2014, 46). A reduction of that magnitude made a significant difference in the listening experience. For context, a 1 dB volume change is referred to as the JND, which stands for just-noticeable difference (Nickerson 2023). A change of 6 dB is “perceived as an approx. 50% increase in volume,” and 10 dB is “perceived” as a “100% increase in volume” (Askland 2008). These perceptions work inversely as well, with a 10 dB decrease in volume sounding half as loud. Recordings now had a much more favorable “signal-to-noise ratio” (Schafer 1977, 272). In addition to lower noise in recordings, bandwidth was greatly improved. By the time of his book publication in 1958, Hartley’s speakers could recreate

20 Hz to 20,000 Hz (Hartley 1958, 208). The first amplifier to reach that bandwidth was the McIntosh 50W1 Unity Coupled Amplifier, and it did so in 1954 (Burgess 2014, 57). The result of these upgrades was the aforementioned use of the term lo-fi as a complement to hi-fi (Harper 2014, 7). Excluding lo-fi's role in hi-fi discussion and Schafer's soundscape, the term would be overlooked until the 1980s (Harper 2014, 10). During this gap, there would be a multitude of artists who contributed to lo-fi's development, even if inadvertently.

The Recipe for “lo-fi”

When initiating research on any musical genre, a fundamental inquiry centers around its origins. Genres can emerge from various sources, such as specific recording locations, as evidenced by genres like garage rock or bedroom pop. Other genres have roots in religious traditions, including gospel and contemporary Christian music. Additionally, many genres are the product of hybridization between existing musical styles, with jazz serving as an example. Jazz developed from combining multiple genres, including blues, ragtime, and work songs (Schuller 2024). Following the hi-fi culture of the 1950s, genres with less emphasis on sound quality began to emerge. These genres often had poor bandwidth and SNR due to location and financial factors. For example, home recording was location-based, DIY music was independently made, and outsider music was amateurish. For these reasons, the recordings were often less polished than studio recordings. Because of this, home recording, DIY, and outsider music became closely associated with lo-fi, so much so that by the 1990s, lo-fi had become its own genre.

Home Recording

Often associated with lo-fi, home recording is a location-based categorization of music. The association between home recording and lo-fi was first put together by Bill Berger, a popular college radio host in the 1980s (Harper 2014, 10). In his radio program, entitled “Low-Fi,” he described lo-fi as “thirty minutes of home recordings produced on inexpensive equipment. Technical primitivism coupled with brilliance” (Harper 2014, 10). Home recording’s modern history is usually traced back to The Beach Boys, with the “self-imposed exile” of Brian Wilson in the 1960s; however, there have been home recordists since the 1890s (Chidester 2014; Wald 2009, 87).⁸ What is notable about The Beach Boys’ home recordings is that the recordings were mainstream releases. Their home-recorded albums came directly after the release of *Pet Sounds*, the album that *Rolling Stone* ranked as the second-best album of all time (Bernstein et al. 2023). Using the Commensurate Sales to Popularity Concept, The Beach Boys’ popularity peaked with *Pet Sounds* reaching nearly seven million album sales (Viera 2023).⁹ Although The Beach Boys’ following album, *Smiley Smile*, would fall short of that benchmark, it still reached a massive audience.

Smiley Smile is credited as “invent(ing) the kind of lo-fi bedroom pop that would later propel” later lo-fi acts, such as Sebadoh and Animal Collective (Richardson 2017). When The Beach Boys released “Smiley Smile” in 1967, the songs were noticeably simpler than previous albums. Recorded in Brian Wilson’s home, not a recording studio, the band

⁸ According to Wald (2009), Silas Leachman is credited with creating nearly 250,000 records in his home during the 1890s.

⁹ The Commensurate Sales to Popularity Concept (CSPC) is a formula that takes a variety sales, such as streaming and albums, and comes up with estimation of true sales (Viera 2016).

members had to rely on their own instrumental abilities (Sacher 2024). This was in stark contrast to the Beach Boys' 1966 album *Pet Sounds*, when the Beach Boys had relied on the talent of a group of studio musicians dubbed the "Wrecking Crew" (Hartman 2012). The absence of studio musicians like the "Wrecking Crew" resulted in *Smiley Smile* being very plain instrumentally. The track "Vegetables" from the album consists only of an electric bass and organ. Other ambient sounds included air blown into bottles and celery that was allegedly chewed by Paul McCartney (David 1990; Peters 2011).

Al Jardine, co-founder of The Beach Boys, admitted that he missed the variety of quality studio gear when recording the album (Sacher 2024). Following the path of Brian Wilson, Paul McCartney retreated from the studio to make his first home-recorded album three years after the Beach Boys released *Smiley Smile* (Beaumont-Thomas 2020). Paul McCartney's self-titled album, *McCartney*, was recorded in secrecy just before the Beatles broke up in 1970 (Beaumont-Thomas 2020; Gallucci 2015). While the home-recorded albums released by the Beach Boys and Paul McCartney were helpful in mainstreaming home recording, recording at home was not always realistic for less prominent artists. Prior to the release of the portastudio in 1979, recording gear was not mass-distributed for home use (Molenda 2007, 180).

The Beach Boys and Paul McCartney had access to a variety of recording resources during their home recordings. Paul McCartney's album was not completely recorded in isolation at home, as McCartney used Morgan Studios during parts of the recording and mixing process (Miles 2001, 369). At home, McCartney had a four-track recorder installed, which was what EMI had provided during the studio recording of "A Day in the Life" in 1967 (Barry 1997, 328; 571). The Beach Boys had the help of sound engineer Stephen

Desper and the luxury of a Gates Dualux radio broadcasting console installed in Brian Wilson's house. As stated earlier, home recording wouldn't be available to the everyday artist in the way that it had been to the Beach Boys and Paul McCartney until 1979 (Molenda 2007, 180). Naturally, home recordings would not be mass-produced until the 1980s for that very reason. However, the roots of the do-it-yourself (DIY) movement had been planted by the Beach Boys and Paul McCartney, and true DIY artists such as R. Stevie Moore began finding workarounds to their financial obstacles.

DIY: R. Stevie Moore

Like home recording, DIY is affiliated with lo-fi. Additionally, like home recording, DIY as a genre is summed up in its name, as DIY stands for "do-it-yourself." Harper finds multiple sources that insinuate the interchangeable nature of lo-fi and DIY. In Amy Spencer's 2005 book *DIY: The Rise of Lo-Fi Culture*, the terms are used interchangeably (Harper 2014, 117). Similarly to home recording, the association between lo-fi and DIY was not immediate, with the connection being formed in the 1990s (Harper 2014, 292). In the *New York Times* article "Lo-Fi Rockers" reviewing the band Ween, their music is described as "Low-Budget (and) do-it-yourself" with "low fidelity" instrumentation (Pareles 1993). Although the associations between the genres did not culminate until the 1980s and '90s, R. Stevie Moore embodied all three of the genres beginning in the early 1970s. R. Stevie Moore, often referred to as the "Godfather" or "Grandfather of Home Recording," began recording in his bedroom in 1972 (Carson, 2008; Curry 2011). He was a fan of the Beach Boys and the Beatles, which was reflected in the music he covered (Moore 1975, 1978). He covered both The Beach Boys and The Beatles in the 1970s,

releasing *R. Stevie Moore Plays Songs by The Beatles* in 1975 and a cover of The Beach Boys' song "Let Him Run Wild" in 1978 (Moore 1975, 1978).

Moore has "400 self-released albums" beginning in the 1970s, the first of which were recorded with a reel-to-reel tape machine (Curry 2011). R. Stevie Moore was not a celebrity equipped with a home recording studio, and his music reflected that. R. Stevie Moore did the best with the equipment he had, expressing to an interviewer that he was not "trying to be lo-fi" (Curry 2011). In the same interview, he accepts the title "grandfather of home taping and lo-fi" but makes it clear that he does not think that is the point, wanting the focus to be on the content, not on labels (Curry 2011). When asked about the state of home recording, he points out that "it's almost too easy" in the twenty-first century, explaining that his home recording efforts were "a bitter struggle to make a living and get some notoriety" (La Gorce 2006).

When Moore began recording, he was limited to two stereo recorders (Curry 2011). He used a process called mic/line mixing, where he could record two sources simultaneously (Curry 2011). He could then add as many additional tracks as he wanted, but at a cost. Each time he wanted to add more layers to a song, he would need to bounce the song (Curry 2011). What this means is that his original guitar and vocals would be consolidated onto a single track by recording the sound on playback (Curry 2011). Once the track was captured, Moore could then add more sounds, such as a piano or vocal harmony (Curry 2011). The result would be a recording with the original guitar and vocals combined with the overdubs (Curry 2011).

While it would be tempting to keep adding overdubs by continuously bouncing the tracks, there were risks involved. The first was that there was no way to remove layers once

they had been consolidated (Curry 2011). Moore mentions this in an interview with *Tape Op* magazine, saying, “You can’t go back and remix” (Curry 2011). What he was referring to specifically was that the top layers were always the clearest and loudest, meaning that special care had to be taken in mixing the levels properly to compensate for the degradation of older layers (Curry 2011). Even with the tracks mixed well, there was still a limit to how many overdubs could be done, since each bounce added more tape hiss to the final product (Curry 2011). Because of the bouncing process, Moore’s final product often sounded like the lo-fi soundscapes described by Schafer (1977, 43).

Outsider Music

Perhaps the strangest genre to overlap with lo-fi during the late twentieth century was outsider music. Less established as a genre, outsider music has no definition in the dictionary, but discussions can be found in social media.¹⁰ The most cohesive research on the topic is the book *Songs in the Key of Z* (Chusid 2000). The book contains a discussion of artists such as Jandek, Daniel Johnston, Wesley Willis, and the Cherry Sisters (Chusid 2000). Chusid describes his book as “a pan-galactic map of crack-pot and visionary music,” which is no exaggeration (2000, ix). Through its analysis of different artists, the book paints a picture of what outsider music is. For instance, Chusid jokingly compares an artist by the name of Jandek to the Beatles, explaining that he was actually very similar to them, the only difference being that he had no “melody, catchy hooks. . . . rhythm, and harmony” (2000, 56). He goes on to describe Jandek’s voice as a “muttering sleepwalk(ing),” his

¹⁰ A search on dictionary.com and urban dictionary brought up no results. However, there are YouTube videos on the subject (https://youtu.be/CVks07UgVQQ?si=SfdUVWmCXu_LCA6a) a reddit subreddit (<https://www.reddit.com/r/outsidermusic/>).

guitar playing as “zombielike strumming,” his harmonica playing as “an asthma attack,” and his drummer as someone “unfamiliar with the kit” (Chusid 2000, 56-7). Later in the book, he describes outsider Wesley Willis as a “six-foot four-inch, 320-pound schizophrenic teddy bear” (Chusid 2000, 93).

The definition of outsider music is best summed up in the introduction, where Chusid references a quote from Ron Moore (2000, xii). Ron Moore describes outsider musicians as having “realness,” which he defines as a “catchall description for artists that exhibit an alarming dearth of talent matched with a total lack of self-awareness or embarrassment.” Given these descriptions, it makes sense that outsider music overlaps with home recording, DIY, and lo-fi. Due to a lack of musical talent, outsiders rarely made it into the studio. Because of this, outsider musicians often recorded music at home on their own, which places them into the categories of both home recorders and DIY musicians. On top of this, many of the songs written by outsider musicians were poorly recorded, leading to a lo-fi mix. R. Stevie Moore is excluded from Chusid’s book, apart from one mention where he is referred to as a “session rocker” (2000, 205). Chusid did not want to present R. Stevie Moore as an outsider, given his abilities as a musician and producer (*Wire* 2012).

Moore understandably distances himself from the genre, saying that outsider musicians did not have “the talent” that he had (*Wire* 2012). However, R. Stevie Moore is still categorized as an outsider musician on many occasions. *Wire* magazine refers to Moore as the “wandering minstrel of American outsider music” (2012). Furthermore, Moore is grouped in with Daniel Johnston, as though they are contemporaries (McGregor 2011). R. Stevie Moore makes it clear that he appreciates the work of artists like Wesley Willis and Daniel Johnston, but that the comparison is not flattering given that they “have

no concept as to how to write or arrange” (*Wire* 2012). Daniel Johnston, despite these alleged deficiencies, achieved a respectable amount of notoriety, with artists like Sonic Youth and Pearl Jam covering his music in live shows (Chusid 2000, 70). In addition to that, Kurt Cobain famously wore a shirt featuring Daniel Johnston’s album *Hi, How Are You* on multiple occasions (Chusid 2000, 70). Like many outsider artists, Daniel Johnston suffered from severe mental illness, having been diagnosed with manic depression in 1986 (Chusid 2000, 75). Johnston had mental breakdowns on many occasions, with his most notably being his 1988 trip to New York (Chusid 2000, 75). Notably, he physically assaulted Sonic Youth’s drummer (who was providing him with housing), camped in homeless shelters, and sprayed anti-satanic graffiti on the Statue of Liberty (Chusid 2000, 75). His unpredictable behavior likely contributed to his notoriety, as Bill Berger referenced Johnston in his “low-fi” radio show, describing him as “the ultimate performer for our times” (Harper 2014, 179).

Lo-fi becomes a genre

In addition to giving publicity to outsider musicians such as Daniel Johnston, Bill Berger’s “low-fi” program indicated a change in lo-fi’s perception. Prior to Berger’s 1986 radio show, lo-fi was an adjective (Harper 2014, 10; 272-5). As discussed earlier, lo-fi in the 1950s and 1960s denoted low-fidelity recording and sound systems. Schafer’s 1977 interpretation was that lo-fi represented “overdense population of sounds” (43). These descriptions present lo-fi as an adjective to depict recordings of low-quality and unfavorable amounts of noise. This perception would shift in large part due to lo-fi’s association with the genres listed previously. Home recording, DIY, and outsider music

often had unavoidable lo-fi characteristics. As mentioned by R. Stevie Moore, the low quality and “overdense” lo-fi sound was not always a choice (Curry 2011; Schafer 1977, 43). Due to the intrinsic lo-fi nature of DIY music, people’s understanding of lo-fi began to change. Lo-fi became a noun, as indicated by Berger’s 1986 description of lo-fi as, “home recordings produced on inexpensive equipment” (Harper 2014, 10; 272-6). This change was recognized by the *Oxford Dictionary* in 2003, with lo-fi being given a supplementary definition (Harper 2014, 11). The new definition described lo-fi as “a genre of rock music characterized by minimal production, giving a raw and unsophisticated sound” (Harper 2014, 11). This definition is generic but shows how drastically the definition has changed over the course of a couple of decades.

Slacker Rock

The 1990s was a more receptive environment for lo-fi. Harper contrasts the 1990s with the 1980s, saying that lo-fi music in the 1980s was seen as “appealing in spite of its flaws” (2014, 284). In comparison, there was a “widespread appreciation of and even preference for recordings considered imperfect” in the 1990s (Harper 2014, 1984). Most of the artists who succeeded as lo-fi musicians in the 1990s fell into a new genre, referred to as slacker rock (Harper 2014, 273). The term “slacker” was used to stereotype Generation X, which the media accused of being “directionless, apathetic, apolitical and lacking identity” (Harper 2014, 297-9).

Slacker rock was a mixture of phonographic imperfections, “sloppy” musicianship, and DIY rhetoric (Harper 2014, 272-5). The “loose” musicianship mixed with the lo-fi sound fed into the slacker stereotype that the media was pushing (Harper 2014, 280-99).

The origins of the stereotype can be linked to publications such as an *Official Slacker Handbook* and Richard Linklater's 1991 film *Slacker* (Harper 2014, 297-9). Harper traces back the origins of slacker rock to Pavement's first single in 1989, asserting that Pavement, Sebadoh, Guided by Voices, and Beck were the "fab four" of 1990s lo-fi (2014, 276). Pavement's approach to lo-fi was different from the lo-fi of the two decades prior. As mentioned earlier, lo-fi in the 1980s was "appealing in spite of its flaws," and for early DIY artists like Moore, these flaws were often unavoidable because of the recording process (Curry 2011; Harper 2014, 284). Pavement, however, saw lo-fi as a creative tool (Harper 2014, 277). Pavement would intentionally sabotage their mix, adding white noise and electrical distortion to their songs (Harper 2014, 277-309). Similar to Pavement, Guided by Voices would disrupt their mix, with front man Robert Pollard explaining that if one of their songs was too poppy, he would intentionally dismantle it (Harper 2014, 310). His goal was to confuse the listener and to do so, he would "put a drone through it or drench it in feedback. Or add a track of somebody snoring" (Harper 2014, 310). The band perhaps most associated with lo-fi out of the "fab four" was Sebadoh. However, the fidelity of their projects varied, with Harper defining their 1994 album *Bakesale* as mid-fi (Harper 2014, 280). Despite this, Sebadoh were referred to as the "lords" and "pioneers" of lo-fi during the 1990s (Harper 2014, 280). Sebadoh's discography ultimately is a mix of indie rock, folk rock, punk, grunge, and lo-fi (Harper 2014, 280-2). The final artist of the "fab four" is Beck, who is famously known for the hit song "Loser," which Harper defines as "lo-fi only in the broadest sense" (2014, 283). Beck was often implicated as the "voice of the slacker generation" (Harper 2014, 283). Beck was not fond of this title, dismissing it in a similar fashion to R. Stevie Moore's rejection of lo-fi (Curry 2011; Harper 2014, 283). Beck's

music, like Sebadoh's, was on a spectrum of fidelity, with some releases being lo-fi and others being hi-fi (Harper 2014, 279-84).

Untangling the mess

Harper claims that by 1995, many of the lo-fi bands of the early 1990s were “no longer considered lo-fi,” meaning that the most culturally relevant era of lo-fi had only lasted for six years (2014, 276; 316). Harper writes that following the end of the era, lo-fi would not have any notable artists until Ariel Pinks's 2004 debut (2014, 316). This assertion excludes lo-fi acts such as Neutral Milk Hotel, Elliot Smith, Panchiko, Duster, and the Microphones. There are likely two reasons for these exclusions, the first being that the aforementioned artists do not fit within Harper's lo-fi aesthetic, and the second being the delayed success of some of these acts. In the first chapter of his dissertation, Harper asks the question: “What is lo-fi?” (2014, 2). Following this question, Harper confronts the convoluted nature of lo-fi discourse (2014, 2-5). Similar to my experience, Harper went into research with misconceptions about lo-fi, believing that lo-fi was a concrete idea (2014, 2). As discussed throughout the thesis, the understanding of lo-fi has been constantly evolving since its first use in the 1950s. Hartley's use of the term lo-fi in regard to a loudspeaker's reproduction quality has no clear connection to the music released by Beck in 1994, for example. Additionally, Schafer's 1977 soundscape analysis is unrelated to Bill Berger's “low-fi” radio program about minimalistic home recording. These respective interpretations of lo-fi must be taken at face value, given that the term meant different things to different people during various times. Harper is correct in saying that as the 1990s progressed, lo-fi began to lose the distinct qualities that were assigned to it during the first

half of the decade (2014, 316). Lo-fi partially reverted to an accessory term, with the purpose of describing the phonographic qualities of music. This change made lo-fi both more inclusive and less concrete. As pointed out by Harper, the lo-fi canon of the early 1990s excluded amateur musicians of many genres, such as jazz, dance, and electronic music (2014, 4). However, Harper's thesis goes on to exclude other artists, such as Neutral Milk Hotel and Elliot Smith, both of whom released music during the supposed lo-fi gap. Exclusions like this are acknowledged by Harper, who reasons that, as the definition becomes broader, the term loses meaning (2014, 4). Lo-fi is difficult to encapsulate since it represents the complement of hi-fi, limited bandwidth, unfavorable SNR, an accessory to other genres, its own set of genres, and more. Because of this, Harper acknowledges that lo-fi has many interpretations from both a technical and aesthetic standpoint (2014, 2-5).

The New Canon

A decade has passed since Harper's dissertation, and lo-fi has reentered popular culture. However, lo-fi's newfound popularity is attributed to a different canon. Google Trends data shows that interest in 'lo-fi' peaked in September 2005.¹¹ Alternatively, the term "lofi" has had increasing interest since 2017, with its current peak in April 2023 (Google Trends). The subtle difference between spelling marks an important shift in the understanding of lo-fi, I would argue. When searching for "lo-fi" music on Spotify, I am directed to "Lofi," a genre category defined by playlists such as "chill lofi study beats,"

¹¹ Google Trends is a website powered by Google that shows the popularity of search queries from 2004-Current

“chillhop,” and “Jazz Vibes.”¹² These playlists seem disconnected from the genre’s original form. For example, the first track in the “Jazz Vibes” playlist is a remix of the nineteenth-century song “Gymnopédie” composed by Erik Satie. The remix features extra synths layered on top, time-based effects such as reverb, and a beat in the background.¹³ On YouTube, a search for “lo-fi” yields results such as “lofi hip hop radio, beats to study to,” “Fall Coffee, Chill Cafe space for Tuesday,” and “Chill Lofi Autumn, Deep Focus Work/Study Concentration.”¹⁴

These titles provide the information necessary to explain Lofi: background music for study sessions and coffee shop hangouts. Modern Lofi, in most instances, serves it seems the same purpose that Muzak did decades prior. *Oxford Learner’s Dictionaries* define Muzak as “continuous recorded music that is played in stores, restaurants, airports, etc.” (n.d). The genre’s origins are commonly attributed to Nujabes, a Japanese record producer. Nujabes began producing Japanese hip-hop beats in the 1990s, using “jazzy, sampled beats” (Reeves 2020). In 2004, Nujabes provided the music for “Samurai Champloo,” a television show that combined hip-hop aesthetics with early 2000s anime (Ohmae 2020). Nujabes’ sound was inspired by boom bap, a style of hip-hop production that sampled and chopped up drum breaks (Lu 2020; Discogs). Nujabes had a relaxed take on hip-hop beat-making, incorporating soft pianos and classical guitars.¹⁵ During his time,

¹² Spotify lets you pick playlists within a genre categorization. When I search on the term “lo-fi,” it takes me to the Lofi categorization: <https://open.spotify.com/genre/0JQ5DAqbMKFKDIyhfS9NTT>

¹³ A recording can be heard here:

<https://open.spotify.com/track/6r0Jqgnd5i92R2cuE0Z1q6?si=e597c6989f584678>

¹⁴ Link for search query: https://www.youtube.com/results?search_query=lofi. Link to “lo-fi hip hop radio, beats to study to”: <https://www.youtube.com/watch?v=jfKfPfyJRdk>. Link to “Fall Coffee, Chill Cafe space for Tuesday”: <https://www.youtube.com/watch?v=VDuFYROXQfg>. Link to “Chill Lofi Autumn, Deep Focus Work/Study Concentration”: <https://www.youtube.com/watch?v=Vc5S0hAAujc>.

¹⁵ The song “Feather” features the piano

(<https://open.spotify.com/track/2ej1A2Ze6P2EOW7KfIosZR?si=30d45b03187c4e1e>).

Nujabes' work was either "described as beats/instrumentals" or put into the hip-hop category (Lu 2020). By the early 2010s, however, the softer sound became known as chillhop, with beats reminiscent of Nujabes surfacing on YouTube and SoundCloud in the 2010s (Lu 2020).¹⁶

As the genre developed online, a new genre categorization was created called Lofi hip-hop. According to members of the early Lofi hip-hop community, the creation of the term was "necessary to the growth of the scene" (Lu 2020). The decision to associate the genre with lo-fi is speculated to have been because of the low fidelity roots of hip-hop sampling as well as the artificial lo-fi elements added to 2010s chillhop beats (Lu 2020). After several years of development, Lo-fi hip-hop had its big breakthrough. Following in the footsteps of Nujabes, a YouTube channel called "Chilledcow" started a live stream that combined chillhop beats with anime aesthetics (Lu 2020). The never-ending livestream featured an anime girl in her room studying to Lofi beats (Lu 2020). The livestream began in February 2020, a month before Covid-19 (Lofi Girl). With everyone stuck at home, "Lofi Girl" became the internet's studying companion. Lofi Girl was my introduction to the word lo-fi as I began my first semester of college online in the summer of 2020. The stream lasted 20,843 hours before it was mistakenly taken down by YouTube (Lofi Girl; Lu). During the two-year livestream, the video garnered a remarkable 668 million views (Silberling 2022). The channel restarted the live stream in 2022 and started many more, and now boasts a subscriber count of over 14.5 million (Lofi Girl). Following the success

The song "Lady Bird" features the guitar
(<https://open.spotify.com/track/0JL9TZip7mL7iwC5EOkALS?si=4250782dee434c8f>).

¹⁶ Chillhop is short for Chill Hip-Hop.

of Lofi Girl, the Lofi hip-hop movement exploded, completely overshadowing traditional lo-fi on every streaming service.¹⁷

As different as Lofi hip-hop is to the 1990's canon of lo-fi, it follows many of the same rules. There are plenty of Lofi songs with limited bandwidth to create a nostalgic feel.¹⁸ Additionally, many Lofi songs add artificial vinyl sounds, white noise, and other sounds associated with low-fidelity recordings.¹⁹ Lofi is not only low fidelity by Schafer's SNR definition of lo-fi but also by his definition of Muzak (which he refers to as "Moozak") (1977, 98). Schafer writes that Moozak is a "deliberate concession to lo-fi-ism, reduc(ing) a sacred art to a slobber" (1977, 98). Schafer's disgust with Moozak, in relation to "lo-fism," is that it contributes to "an overpopulation of sounds," leading to an absence of clarity (1977, 43; 98). Lofi, therefore, fits Hartley and Schafer's definition, and it does not stop there. Lofi, due to the ease of production, is almost always home-recorded in a DIY manner (Lu 2020). Lofi ignores the lo-fi aesthetics of the 1990s but still meets the criteria for low fidelity, even if the limited bandwidth and unfavorable SNR are added artificially.

¹⁷ Search Query of Lofi /lo-fi on YouTube: https://www.youtube.com/results?search_query=lo-fi. Spotify's Lofi selection: <https://open.spotify.com/genre/0JQ5DAqbMKFKDIyhS9NTT>. Soundcloud search query: <https://soundcloud.com/search?q=lo-fi>. Apple Music search query: <https://music.apple.com/us/search?term=lofi>

¹⁸ Examples include: "Vibrancy" by Kudasaibeats (<https://open.spotify.com/track/6aTVWagAw9xXZDNYfBRh4O?si=344d424b25b04fad>), "teardrops" by lavlof (<https://open.spotify.com/track/2jK4MSRgDJ4UNC6hkWLamf?si=0b62d0202e904b46>), and "Die for You" by Ingelwood syndicate (<https://open.spotify.com/track/1nLi6OAjTRfFRNYTrvpmPj?si=8d80094415fb4853>).

¹⁹ Examples include: "Mesmerized" by Pi Teddy (<https://open.spotify.com/track/7Hc0KECG4KNIQqDcDtvUIj?si=9a5fefc898df49dd>), "Brookside" by Chekkerz (<https://open.spotify.com/track/63GQrIWOaKE71ksIGPCjJt?si=56b90647166844f6>), and "Silver Birch" by Uxxii (<https://open.spotify.com/track/31dGP5ZJyL2tAPeoZ4uN8O?si=5cbee96c574e4178>).

The Lost lo-fi

The first wave of lo-fi began to lose momentum in the early 2000s. According to Harper, the genre that had taken forty years to develop, exhibited only around six years of distinct aesthetic qualities before the term was reduced to an adjective once again (2014, 316). Discourse on lo-fi in the 2000s is scarce, with the rest of Harper's dissertation focused on Will Oldham, Ariel Pink, and Willis Earl Beal (2014, 316-19; 347). These artists seem like weak inclusions, given their relative irrelevance in the current lo-fi scene. Artists like Elliot Smith, Panchiko, Neutral Milk Hotel, and Duster feel more relevant to the modern lo-fi sound. Additionally, these artists directly followed bands like Sebadoh and Guided by Voices, releasing music in the latter half of the 1990s and into the twenty-first century. This lack of documentation is understandable for artists like Duster and Panchiko, who gained relevance via the internet in the latter half of the 2010s (Cullivan 2023; Richardson 2019).

As for Elliot Smith and Neutral Milk Hotel, it is possible that the lo-fi aspects of their music were overshadowed by other genre affiliations. For example, Elliot Smith did not fit the slacker rock mold, being more of an acoustic singer/songwriter associated with genres such as alternative rock, folk, and indie (The Vogue n.d.). Neutral Milk Hotel, in addition to being considered lo-fi, were referred to as Indie Rock and folk, playing primarily acoustic instruments like Elliot Smith (Gomez 2023). The acoustic approach taken by Elliot Smith and Neutral Milk Hotel contrasted the methods of the fab four, which was more electric-guitar-centric, leading to electric noise.²⁰ Additionally, lo-fi had

²⁰ Consider, for example: "Soul and Fire" by Sebadoh (<https://open.spotify.com/track/72WzLBoSQggMZ0S5hm95VH?si=314013f4aca64f27>)

regressed back to its role as an adjective by the end of the 1990s, diluting the term's meaning (Harper 2014, 316). For these reasons, Elliot Smith and Neutral Milk Hotel, while lo-fi, were not as strongly associated with the genre as prior acts. Although largely ignored in lo-fi documentation, musicians such as Elliot, Smith, Panchiko, Neutral Milk Hotel, and Duster's influence on modern lo-fi cannot be understated. Duster, for example, had minimal internet presence until 2022 but now boasts more Spotify listeners than Sebadoh, Guided by Voices, and Pavement combined (Google Trends).²¹ Despite their delayed success, Duster is one of the most influential lo-fi bands in the 2020s, serving as Liam McCay's primary musical influence (Murray 2024).

The success of artists like Elliot Smith and Duster reflects the direction that lo-fi has taken in the 2020s: intimate, somber, and slow. Reminiscent to the short-lived fab four era that lasted from 1989-1995, releases from the "lost lo-fi" era that followed were brief (Harper 2014, 276; 316). Duster's only releases prior to regrouping in 2019 were in 1996, 1998, and 2000 (Discogs). Elliot Smith's solo career was cut short due to his untimely death in 2003. Neutral Milk Hotel, like Duster, released only three albums during their first stint, with their final album release being in 1998 (Discogs). Finally, Panchiko formed between 1997-98 but disbanded in 2001 after their first unsuccessful release (Cullivan 2023). Lo-fi's popularity began to decrease in the 2000s, with most indie artists now

Or the intentional feedback/noise on the song "Demons are Real" by Guided By Voices (<https://open.spotify.com/track/3feeZeT89PWE9eonRCrFIO?si=dc1b03d4a7254297>)

²¹ Duster's Spotify profile:

<https://open.spotify.com/artist/5AyEXCtu3xnnsTGCo4RVZh?si=pgvQsMU5TOetY1BRQEF8AQ>.

Guided By Voices' Spotify profile:

<https://open.spotify.com/artist/4oV5EVJ0XFWsJKoOvdRPvl?si=Wnz6MGpLTgmyTaARHHHttw>

Sebadoh's Spotify profile:

https://open.spotify.com/artist/2wrhBKGc3DTNNDRJPaxW6?si=gzF7T2mXQEqY066_tmgKng

Pavement's Spotify profile: <https://open.spotify.com/artist/3inCNiUr4R6XQ3W43s9Aqi?si=k2As62-kSqGVpn85H0hgDw>

capable of recording high-quality music at home. At the same time, musicians like Nujabes and J Dilla were laying down the groundwork for the Lofi hip-hop scene which would take off in the 2010s. As a result of Lofi hip-hop's popularity, traditional 1990s lo-fi is often overlooked on streaming services. Since lo-fi has been more closely associated with Lofi hip-hop in the 2010s, modern lo-fi artists are often miscategorized.

Lo-fi aliases

In the twenty-first century, there is no shortage of independent music releases. Genres such as home recording, DIY, and outsider music are heavily saturated because of the ease of music production and distribution. As discussed by R. Stevie Moore, home recording in the twenty-first century is “almost too easy,” with retailers such as Amazon offering home recording starter packs for as little as \$199 dollars (Curry 2011).²² In addition to modern recording gear being easily accessible, it also has hi-fi capabilities. For example, Steve Lacey recorded a Grammy-nominated album on his iPhone 6 (Pierce 2017). Music distribution is another area that has become more accessible. Digital music aggregators such as LANDR will distribute music to streaming services and social media for as little as \$23.99 a year (Lavoie 2024). Because of the easy production and distribution of music, genres such as home recording and DIY no longer have the same restraints. Home recording, which is now predominantly referred to as bedroom pop, is a genre where people record music in bedrooms, typically on their laptops (Uitti 2022).

²² Link to Amazon “Studio Recording Bundle.”
https://www.amazon.com/dp/B08DBGNZT1/ref=sspa_dk_offsite_brave_1?aaxitk=29f2af548af5be2f5250ba4cdcefe93a&tqtoken=AgR4Bg0oapjIXMxXhkO8wmxTQeFh1_qsjT_Lr-9WgkeLqgAGgABAAlyZWNpcGllbnQAC0FtYXpvbkFkc1RRAAEAEF3cy1rbXMtaGllcmFyY2h5ACRiM2NlMjE3OS0wMzJhLTQ5NTAtOW

The shift from home recording to bedroom pop, demonstrates the accessibility of modern recording. All the tools needed to record an album can now fit in the bedroom, with the laptop replacing the recording studio through the aid of a Digital Audio Workstation.²³ Without the recording restraints of the twentieth century, most bedroom pop and DIY recordings would be considered hi-fi. However, some artists choose to lower the fidelity of their recordings through methods such as recording with old equipment, or intentionally sabotaging the mix. For example, Mac DeMarco recorded his 2012 debut album on a Tascam 244 Portastudio, similar to Elliot Smith's use of the Tascam 414 Portastudio for his debut album (Happy 2021; Lloyd-Russel 2024).

Alternatively, Liam McCay often uses both bandwidth reduction and an unfavorable SNR to give his songs a warm feel.²⁴ Even when recording digitally, Liam McCay is able to record music reminiscent of artists such as Duster, whom he cites as influential to his sound (rjei 2023, 01:03). Releasing music under 14 different music profiles, Liam McCay has reignited the modern lo-fi scene. One of his most famous music profiles, “sign crushes motorist,” is a direct reference to Duster’s former band, in which they released a song under the same title. However, despite Liam McCay’s direct connection to 1990s lo-fi, both in inspiration and sound, he is referred to in interviews as slowcore (Greyed Out 2023). Similarly, many modern lo-fi artists are considered bedroom pop artists, indie musicians, and other non-specific terms.²⁵ This is likely because of Lofi hip-hop’s popularity, which has distorted people’s perception of lo-fi.

²³ A Digital Audio Workstation (also referred to as a DAW) is a digital audio recording software.

²⁴ For example, the song “U” released under the pseudonym hold.

<https://open.spotify.com/track/1fckVDRsaql38b9GfMjZ6x?si=629e4ef045a54fa5>

²⁵ See, for example, these Spotify playlists that label lo-fi artists as bedroom pop and indie.

Conclusion

Over the last 75 years, lo-fi has served both as an adjective and noun, representing descriptions of sound as well as becoming its own genre. Originating as the complement of hi-fi, Hartley's assertion that hi-fi audio required a bandwidth of 32 Hz to 9000 Hz set the precedent that lo-fi represented limited bandwidth (Hartley 1958, 202). Schafer contributed to lo-fi's sonic description in 1977, defining lo-fi as "an unfavorable signal-to-noise-ratio" (1977, 272). Genres like home recording, DIY, and outsider music had sonic qualities consistent with that of lo-fi, as defined by Hartley and Schafer. The three closely associated genres set the framework for the lo-fi movement of the 1990s. Home recording was the first step, as the Beach Boys and Paul McCartney demonstrated that music recorded at home could be commercially successful. In the 1970s, R. Stevie Moore began recording at home, without the luxury of commercial equipment and studio access that was available to the Beach Boys and the Beatles. DIY recording became more common in the 1980s, with outsider musician Daniel Johnston obtaining commercial success with his low-quality recordings. In 1986, lo-fi extended past its sonic qualities, being described by Bill Berger as "home recordings produced on inexpensive equipment" (Harper 2014, 10). In the 1990s, lo-fi developed its canon through the form of slacker rock, with artists like Pavement and Sebadoh adding to the lo-fi aesthetic with sloppy slacker rock musicianship. By 1995, lo-

Spotify's "bedroom pop" playlist has slacker rock musician Mac Demarco, as well as lo-fi artists such as fanclubwallet and Orchid Mantis.

<https://open.spotify.com/playlist/37i9dQZF1DXcxvFzl58uP7?si=56bb21fb4f714e84>

Spotify's Indie Playlist "Today's Indie Rock" has lo-fi artist Current Joys and Mount Eerie.

fi had several associations, such as limited bandwidth, unfavorable SNR, sloppy musicianship, and DIY home recording.

In the 2000s, lo-fi was reduced back to a descriptor for other genres; however, this time, the bandwidth limitations and unfavorable SNR were usually manually added. In the 2010s, Lofi hip-hop became the new canon, using artificial noise such as vinyl plugins and ambient noises like rain and nature. Although Lofi hip-hop had no relation to 1990s lo-fi, it fit within the boundaries of Hartley and Schafer's definitions. Because of Lofi hip-hop's unprecedented success in the 1990s, lo-fi got lost in modern streaming service algorithms. With Lofi hip-hop as the new lo-fi canon, modern lo-fi artists are often categorized as bedroom pop, indie, and slowcore.

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Appendix:

weighted blanket (<https://youtu.be/x4Ljue5kBcQ>).

fondling abroad (<https://youtu.be/ld2mYdTJcJM>).

peace (<https://youtu.be/i5tPug66WR8>).

i dont see everything (<https://youtu.be/uzMjT0rLNkw>).

I love to wake up in unfamiliar places

(<https://youtu.be/xLOI-31mTEY?si=11fJJ0RcbI41Ag9>).

guardian (<https://youtu.be/olDFWrJEdXg>).

aphex hates you (https://youtu.be/dk4bEbnmF_U?si=-paUe76CecaVLhgv).