

MIXING TECHNIQUES: BETWEEN TECHNICAL PRECISION AND ARTISTIC INTENT

MARC ALEXANDRU TINT¹, STELA DRĂGULIN²

SUMMARY. Mixing is a critical phase in music production, defining a track's sonic character and commercial appeal. Engineers employ EQ, compression, saturation, reverb, and automation to shape the final sound, adapting techniques to each genre's distinct requirements. Pop music prioritizes vocal clarity, autotune, and harmonic layering, while rock relies on dynamic contrast, distortion, and analogue warmth. Jazz and folk emphasize natural acoustics with minimal processing, whereas electronic and dance music demand precise bass control and rhythmic cohesion. Industry leaders like Dave Pensado, known for innovative digital processing, and Stuart White, recognized for his efficiency and depth, exemplify the diverse approaches to mixing. Michael Brauer's multi-bus compression technique highlights the blend of technical precision and artistic intuition. As genres evolve, mixing continues to adapt, ensuring music remains both commercially competitive and emotionally compelling.

Keywords: music production, mixing techniques, commercial appeal, emotional impact, genre, sonic identity

1. Introduction

The process of mixing, a crucial phase in music production, involves integrating individual tracks into a cohesive, polished final product. This stage is of paramount significance, particularly within the realm of chart music, where the quality of the mix directly influences the commercial appeal and success of a song.

¹ PhD Student, Transilvania University of Brasov, Faculty of Music, Corpul Z, Sirul Metropolit Andrei Saguna 2, Brasov, 500123, Romania. E-mail: marc.tint@unitbv.ro

² Professor PhD, Transilvania University of Brasov, Faculty of Music, Corpul Z, Sirul Metropolit Andrei Saguna 2, Brasov, 500123, Romania. E-mail: steladragulin@yahoo.com



Mixing techniques involve a combination of tools and processes designed to enhance the clarity, balance, and emotional impact of a song. These techniques typically include equalization (EQ) to shape the tonal balance of individual tracks, compression to control dynamics and ensure consistency, reverb and delay to create depth and space, panning to position sounds within the stereo field, and automation to introduce movement and variation throughout the mix. Additionally, saturation and distortion can add warmth and character, while creative effects – such as modulation, pitch shifting, and filtering – help achieve unique sonic textures.

While these tools follow industry standards and often reference professional reference tracks to maintain competitive sound quality, their application is highly context dependent. The choice and intensity of these techniques vary based on factors such as genre, where electronic music may favor heavy compression and intricate reverb effects, whereas acoustic or jazz recordings might prioritize a more natural, dynamic sound. Additionally, the target audience influences the mix – radio-friendly pop tracks often emphasize loudness and clarity, whereas cinematic or experimental music may focus more on atmospheric depth and complexity. Ultimately, the art of mixing lies in striking the right balance between technical precision and artistic intent.

2. Relevance of genres

Pop or popular music, a constantly evolving genre, broadly encompasses any music designed for mainstream appeal, with the term “pop” often used to describe anything that can be heard on popular radio stations. In this genre, the use of autotune has become particularly prevalent, with artists such as Billie Eilish and Travis Scott utilizing it to achieve distinctive vocal tones that contribute to the genre’s unique sound³.

Additionally, surgical EQ is frequently employed to eliminate unwanted frequencies and create a balanced mix where every individual element occupies its own sonic space. Harmonic layers, often subtle in their presence, are a cornerstone of pop music production, enhancing the richness and lushness of the final mix without overshadowing the primary elements⁴.

³ Music Gateway Team. “What are the Different Genres of Music?”. *Music Gateway*, 2023, <https://www.musicgateway.com/blog/spotify/what-are-the-different-genres-of-music> (accessed 14 March 2025).

⁴ Bradbury, Will. “Recording and Mixing Techniques for Different Music Genres”. *Pirate.com*, 2024, <https://pirate.com/en/blog/recording-mixing-techniques-different-genres/> (accessed 14 March 2025).

In contrast, rock music, with its raw energy and prominent instrumental emphasis, requires mixing engineers to focus on crafting a well-balanced representation of the various instruments while maintaining the prominence of drums and guitars. The dynamic shifts between soft and loud sections are also a critical concern, ensuring smooth transitions without sacrificing the emotional intensity that defines rock music⁵.

For instance, The Strokes famously utilized distortion on Julian Casablancas' vocal microphone during the recording of their debut album "Is This It", which contributed to the gritty, lo-fi sound that characterizes the record. Additionally, the use of layered guitars is a common technique in rock production to create a fuller, more textured sound⁶.

Parallel compression, blending a heavily compressed signal with a dry signal, is often employed to maintain the energy and punch of a track without compromising its dynamic range. Many engineers also prefer analog mixing equipment for its warmth and character, with iconic tools like the Neve 1073 preamp and Universal Audio 1176 compressor widely revered for their sonic qualities⁷.

In the case of jazz, the focus shifts from sheer energy to the subtlety and nuance of individual instruments and the acoustic space in which they are recorded⁸. The capturing of room acoustics and careful microphone placement are paramount in jazz mixing, with engineers like Al Schmitt dedicating significant time to ensure the natural timbre of each instrument is preserved. The goal is to capture the organic sound of the ensemble while maintaining the integrity of the performance⁹.

Blues, traditionally structured around the 12-bar blues form, has evolved from a solo performance style—typically featuring voice and guitar or banjo—to a more ensemble-oriented genre incorporating instruments such as bass, drums, and electric guitars. While the genre retains its

⁵ Hamp, Ed. "Mixing for Different Music Genres: Approaches and Factors to Consider". *Beat*, 2023, <https://vocal.media/beat/mixing-for-different-music-genres-approaches-and-factors-to-consider> (accessed 14 March 2025).

⁶ Bradbury, Will. "Recording and Mixing Techniques for Different Music Genres". *Pirate.com*, 2024, <https://pirate.com/en/blog/recording-mixing-techniques-different-genres/> (accessed 14 March 2025).

⁷ Idem.

⁸ Hamp, Ed. "Mixing for Different Music Genres: Approaches and Factors to Consider". *Beat*, 2023, <https://vocal.media/beat/mixing-for-different-music-genres-approaches-and-factors-to-consider> (accessed 14 March 2025).

⁹ Bradbury, Will. "Recording and Mixing Techniques for Different Music Genres". *Pirate.com*, 2024, <https://pirate.com/en/blog/recording-mixing-techniques-different-genres/> (accessed 14 March 2025).

foundation in simple chord progressions, the modern blues mix often requires an emphasis on preserving the raw, emotional quality of the performance, ensuring the instruments and vocals come through with clarity and depth¹⁰.

In folk music, the priority is to emphasize the purity of the singer's voice and the authenticity of the songwriter's performance. Mixing in this genre is typically minimal, with an emphasis on preserving the natural feel of the recording. The vocal is often kept front and center, with minimal interference from post-production effects.

The approach to mixing in electronic genres, especially in dance-oriented subgenres such as house music, is distinct from traditional methods. Producers focus on creating a mix that delivers both punch and clarity while energizing the dance floor. A key focus is sculpting the low-end frequencies, particularly in ensuring a powerful and distinct bass presence¹¹.

House music, which emerged in the late 1970s in Chicago¹², is typified by its repetitive four-on-the-floor beat and a tempo typically ranging from 120 to 130 beats per minute. In electronic music, achieving a tight, punchy bass is essential, and producers often split the bass into sub-bass and mid-bass components to prevent muddiness and ensure the elements complement one another. Furthermore, the mix must be engineered to sound cohesive and powerful, even on club sound systems, which are often mono¹³.

Genres such as K-Pop, a relatively recent genre that blends elements from pop, electronic music, rap, R&B, and classical music, require a highly polished and energetic mix that appeals to a diverse global audience. Similarly, Latin music, which has roots in Spanish and African musical traditions, requires careful attention to its rhythm-driven elements, with an emphasis on polyrhythms, percussion, and the passionate energy that defines the genre. Both genres demand a mix that captures their cultural vibrancy and rhythmic intricacy¹⁴.

¹⁰ Music Gateway Team. "What are the Different Genres of Music?". *Music Gateway*, 2023, <https://www.musicgateway.com/blog/spotify/what-are-the-different-genres-of-music> (accessed 14 March 2025).

¹¹ Hamp, Ed. "Mixing for Different Music Genres: Approaches and Factors to Consider". *Beat*, 2023, <https://vocal.media/beat/mixing-for-different-music-genres-approaches-and-factors-to-consider> (accessed 14 March 2025).

¹² Music Gateway Team. "What Are the Different Genres of Music?". *Music Gateway*, 2023, <https://www.musicgateway.com/blog/spotify/what-are-the-different-genres-of-music> (accessed 14 March 2025).

¹³ Bradbury, Will. "Recording and Mixing Techniques for Different Music Genres". *Pirate.com*, 2024, <https://pirate.com/en/blog/recording-mixing-techniques-different-genres/> (accessed 14 March 2025).

¹⁴ Music Gateway Team. "What Are the Different Genres of Music?". *Music Gateway*, 2023, <https://www.musicgateway.com/blog/spotify/what-are-the-different-genres-of-music> (accessed 14 March 2025).

Originating in Jamaica in the 1960s, reggae is a fusion of traditional Jamaican folk music with jazz and R&B. The genre is known for its offbeat rhythms and staccato chord progressions. In reggae production, the mix needs to emphasize the groove and rhythm section, with the drums and bass typically forming the backbone of the track¹⁵.

In conclusion, mixing techniques in chart music are not only an essential component of music production but also serve as a reflection of the unique demands and characteristics of each genre. From the electronic precision of pop music to the organic, live sound of jazz and folk, the role of the mixing engineer is to ensure that each element of the track supports the artistic vision while enhancing the song's appeal to its intended audience. As genres continue to evolve and merge, mixing techniques will also adapt, maintaining their crucial role in shaping the sonic identity of contemporary music.

3. Case studies

3.1. *Dave Pensado's Innovative Mixing Techniques*

David Pensado, an acclaimed mix engineer, reached a significant career milestone by mixing three US number-one hits in a single month: "Be Without You" by Mary J. Blige, "Check on It" by Beyoncé, and "Love" by Keyshia Cole. Renowned for his collaborations with top artists such as Christina Aguilera, Justin Timberlake, and the Black-Eyed Peas, Pensado prioritizes creativity over reliance on equipment. He emphasizes that mixing engineers cannot market their technical skills alone; they must sell their creative expertise¹⁶.

Pensado's workflow begins with listening to a rough mix of the track to identify its strengths and weaknesses. He notes his first impressions to use as a guide throughout the mixing process. A proponent of digital tools, Pensado argues that advancements in plug-ins have democratized music production. He states, "Digital has revolutionized music. Affordable technology enables more artists to create, increasing the potential for exceptional work"¹⁷.

An example of his innovative approach is evident in his work on "Beep" by The Pussycat Dolls. Pensado combined a Linear Phase EQ for broad tonal adjustments with McDSP EQ to add color, crafting an aggressive and commanding vocal tone. He believes even the cheapest equipment can have a purpose and evaluates gear based on its uniqueness rather than its cost¹⁸.

¹⁵ Idem.

¹⁶ Tingen, Paul. "Secrets of the Mix Engineers: David Pensado". *Sound On Sound*, 2007, <https://www.soundonsound.com/techniques/secrets-mix-engineers-david-pensado> (accessed 14 March 2025).

¹⁷ Idem.

¹⁸ Idem.

On Sean Garrett's "Buttons," Pensado focused on enhancing the song's rhythmic feel using the Trans-X Multi plug-in. This tool allowed him to manipulate transients in different frequency bands, restoring punch and brightness in the low-mid and high frequencies. Pensado also used the Trans-X to add high-end harmonics to vocals, compensating for natural limitations in frequency response. By employing subtle distortion effects, he imbued Nicole Scherzinger's vocals with authority, aligning with the assertive and sensual tone of the song. Additionally, he incorporated creative delays and reverb effects, such as a 16th-note delay and a long reverb he dubbed the "Enya Reverb," which added an ethereal quality reminiscent of Middle Eastern music¹⁹.

3.2. Stuart White's Evolving Mixing Philosophy: Balancing Precision, Energy, and Emotion

Stuart White, a seasoned mix engineer and producer, began his career at Quad Studios. His portfolio includes collaborations with Alicia Keys, Nicki Minaj, Sia, Jay-Z, Nas, FKA Twigs, Megan Thee Stallion, and Solange. He is a two-time Grammy Award winner with seven nominations²⁰.

Earlier in his career, White was meticulous about session organization, including elaborate setups, proper track naming, and extensive color coding. However, his priorities have since shifted to speed and focus. During the recording of "Pure/Honey" on Beyoncé's album *Renaissance*, a malfunctioning tube in a 251-microphone introduced noise, which White leveraged to enhance the track's character²¹.

White's mixing style involves broad strokes early in the process, as he believes this approach benefits from his unfamiliarity with the track. For instance, while recording vocals, he EQs the drums and bass, and sculpts reverbs and delays using compression, distortion, and modulation. His mixing style has become more aggressive in recent years, aiming for a crisp, exciting sound with a touch of sizzle for depth and contrast²².

White emphasizes that achieving loudness begins with balance. He avoids relying on limiters early in the process, using them sparingly only once the mix is balanced and dynamic. This approach preserves transient and maintains the integrity of the mix. White warns against over-mixing, highlighting the importance of retaining emotion and dynamics²³.

¹⁹ Idem.

²⁰ Tingen, Paul. "Stuart White: Recording & Mixing Beyoncé". *Sound On Sound*, 2022, <https://www.soundonsound.com/techniques/stuart-white-recording-mixing-beyonce> (accessed 14 March 2025).

²¹ Idem.

²² Idem.

²³ Idem.

3.3. Michael H. Brauer: Mixing as an Intuitive Performance

Michael H. Brauer, another highly acclaimed mix engineer, is celebrated for his versatility across genres and innovative mixing methods. Based in New York, Brauer has worked with artists ranging from The Rolling Stones, James Brown, and Bob Dylan to Coldplay and KT Tunstall²⁴.

Despite the extensive outboard gear in his studio, Brauer emphasizes the emotional and performance aspects of mixing over technology and states: “mixing is like a performance. I used to play drums; now I play an SSL console. The desk is an instrument, and I treat mixing as an intuitive process, constantly riding the faders to bring the mix to life”²⁵.

Brauer simplifies his sessions by limiting track counts to a maximum of 44, even when the original session contains hundreds of tracks. His assistant compiles stems to ensure only essential elements remain, allowing Brauer to focus on the creative aspects of mixing²⁶.

Brauer’s work on Coldplay’s “Violet Hill” demonstrates his ability to balance technical precision with emotional storytelling. He ensured the guitars reflected the song’s anger without harshness and complemented the arrangement’s shifts from powerful choruses to intimate moments. His techniques included creative compression for drums and bass, where complex compressors enhanced aggression, while parallel processing added fullness and punch. These methods maintained the band’s signature sound while enhancing the track’s dynamics²⁷.

3.4. Bob Clearmountain: Pioneering the Art of Specialist Mixing

Bob Clearmountain, who started as an assistant engineer, became the record industry’s first acknowledged specialist mixing engineer. His portfolio includes work with The Rolling Stones, Christina Aguilera, and Buddy Guy²⁸.

Clearmountain’s mix of “Shine a Light” relied heavily on outboard processing, using equipment such as Urei 1178 and Empirical Labs Distressor compressors, and Pultec EQP 1A3 equalizers. Mixing the Rolling Stones posed

²⁴ Tingen, Paul. “Secrets of the Mix Engineers: Michael Brauer”. *Sound On Sound*, 2008, <https://www.soundonsound.com/techniques/secrets-mix-engineers-michael-brauer> (accessed 14 March 2025).

²⁵ Idem.

²⁶ Idem.

²⁷ Idem.

²⁸ Lockwood, Dave. “Bob Clearmountain: Master Mixer”. *Sound On Sound*, 1999, <https://www.soundonsound.com/people/bob-clearmountain-master-mixer> (accessed 14 March 2025).

challenges due to the concentration of instruments in the upper mid-range frequencies. However, Mick Jagger's distinctive voice naturally cut through the mix, requiring minimal adjustment²⁹.

In contrast, Christina Aguilera's vocal performance on "Live with Me" required significant adjustments due to excessive stage noise picked up by a sensitive wireless mic. Clearmountain used desk EQ to add treble and Digidesign Pitch for minimal tuning adjustments³⁰.

Clearmountain's intuitive mixing approach involved responding to the music in real-time. His methodology highlights a balance between technical expertise and artistic interpretation, ensuring the mix serves the music's emotional core³¹.

3.5. Chris Lord-Alge's Meticulous Approach

Chris Lord-Alge relocated to Los Angeles in 1988, where he expanded his portfolio to include artists such as Prince, Tina Turner, and Green Day. His meticulous approach is exemplified in his work on My Chemical Romance's "Welcome to the Black Parade"³².

The session comprised 159 tracks, requiring significant preparation. Lord-Alge began by cleaning up hums, noises, and extraneous elements while maintaining musical integrity. He replaced the original kick drum with a punchier sample and layered additional snare samples, all sourced from the track itself. Vocals were heavily layered, with lead vocals doubled and backing vocals condensed³³.

Lord-Alge's mixing style emphasizes punch and immediacy. He uses classic compressors, SSL EQs, and unique mixing techniques. Monitoring at low volumes, he makes precise adjustments to ensure the mix remains impactful without fatigue. Automation plays a crucial role, with sections sculpted 15-30 seconds at a time to create a bold and dynamic mix³⁴.

²⁹ Tingen, Paul. "Secrets of the Mix Engineers: Bob Clearmountain". *Sound On Sound*, 2009, <https://www.soundonsound.com/techniques/secrets-mix-engineers-bob-clearmountain> (accessed 14 March 2025).

³⁰ Idem.

³¹ Idem.

³² Tingen Paul. "Secrets of the Mix Engineers: Chris Lord-Alge". *Sound On Sound*, 2007, <https://www.soundonsound.com/techniques/secrets-mix-engineers-chris-lord-alge> (accessed 14 March 2025).

³³ Idem.

³⁴ Idem.

3.6. *Tony Maserati*

Tony Maserati, an Italian American mixer, began his career at Sigma Sound Studios in New York and played a pivotal role in shaping the city's hip-hop and R&B sound. His credits include artists such as David Bowie, Usher, and Beyoncé³⁵.

Maserati employs a hybrid workflow, combining digital and analog techniques. For instance, he handles automation in-the-box but sums drum tracks outside the DAW using Neve sidecars and summing boxes. This hybrid approach enhances sound quality while leveraging advancements in digital audio³⁶.

In “Save Room” by John Legend, Maserati blended technical mastery with creative precision. He layered multiple kick drums to achieve a balanced sound and applied creative routing techniques for reverb. For vocals, Maserati addressed inconsistencies between takes using a combination of plug-ins and outboard processors, ensuring a cohesive and polished result. His workflow exemplifies the seamless integration of technical skill and artistic vision in modern music production³⁷.

3.7. *Automation in “Bad Guy” by Billie Eilish*

Billie Eilish’s “Bad Guy” provides an excellent example of the creative use of automation. The song’s producer, Finneas O’Connell, employs volume automation to dynamically bring different elements in and out of the mix³⁸.

For instance, the bassline is subtly dropped out during the verse to allow the vocals to stand out, then brought back in during the chorus to reinforce the track’s energetic impact. This use of automation not only creates space for individual elements to shine but also helps maintain the track’s dynamic tension, ensuring that the listener remains engaged throughout the song³⁹.

³⁵ Tingen Paul. “Secrets Of The Mix Engineers: Tony Maserati”. *Sound On Sound*, 2007, <https://www.soundonsound.com/techniques/secrets-mix-engineers-tony-maserati> (accessed 14 March 2025).

³⁶ Idem.

³⁷ Idem.

³⁸ Gibson, David. *The Art of Mixing: A Visual Guide to Recording, Engineering, and Production*. 3rd ed., Routledge, 2019.

³⁹ Idem.

3.8. Reverb and Delay in “Someone Like You” by Adele

In the case of Adele’s “Someone Like You”, both reverb and delay are used to enhance the intimate yet expansive atmosphere of the song. The subtle yet lush reverb applied to the piano and vocals helps create a sense of warmth and space, allowing the raw emotion of the performance to shine through. The delay, used sparingly, enhances certain vocal phrases, adding depth and dimension without detracting from the song’s simplicity and emotional impact⁴⁰.

3.9. Vocal Processing in “Shape of You” by Ed Sheeran

Ed Sheeran’s “Shape of You” demonstrates the sophisticated use of vocal processing to achieve a polished and engaging sound. In this track, the vocals are processed with EQ, compression, and reverb to create a bright, upfront presence that stands out clearly in the mix. A slight high-end boost is applied to enhance the clarity of the vocals, while de-essing is used to manage sibilance without compromising the vocal’s presence⁴¹.

Additionally, subtle pitch correction and autotuning ensure the vocals remain perfectly in tune while preserving Sheeran’s natural tone. The combination of these techniques results in a clean, polished vocal that blends seamlessly with the energetic instrumental arrangement, contributing to the track’s commercial appeal⁴².

4. Conclusion

The mixing techniques essential for creating commercially successful chart music—particularly in home studio settings—require a strategic application of EQ, compression, saturation, reverb, delay, and automation. Layering and modulation effects also play an important role in enhancing the texture and depth of the track.

The use of reference tracks provides a crucial benchmark for maintaining industry standards and ensuring that the final product meets competitive commercial expectations. Through a combination of these technical and creative approaches, mixing engineers can produce polished, engaging tracks that stand out in the crowded world of chart music.

⁴⁰ Hepworth-Sawyer, Russ & Hodgson, Jay. *Mixing Music*. Routledge, 2016.

⁴¹ White, Paul. *Basic Mixing Techniques*. Music Sales Limited, 2010.

⁴² Idem.

REFERENCES

- Bradbury, Will. "Recording and Mixing Techniques for Different Music Genres". *Pirate.com*, 2024, <https://pirate.com/en/blog/recording-mixing-techniques-different-genres/> (accessed 14 March 2025).
- Gibson, David. *The Art of Mixing: A Visual Guide to Recording, Engineering, and Production*. 3rd ed., Routledge, 2019.
- Hamp, Ed. "Mixing for Different Music Genres: Approaches and Factors to Consider". *Beat*, 2023, <https://vocal.media/beat/mixing-for-different-music-genres-approaches-and-factors-to-consider> (accessed 14 March 2025).
- Hepworth-Sawyer, Russ & Hodgson, Jay. *Mixing Music*. Routledge, 2016.
- Lockwood, Dave. "Bob Clearmountain: Master Mixer". *Sound on Sound*, 1999, <https://www.soundonsound.com/people/bob-clearmountain-master-mixer> (accessed 14 March 2025).
- Music Gateway Team. "What are the Different Genres of Music?". *Music Gateway*, 2023, <https://www.musicgateway.com/blog/spotify/what-are-the-different-genres-of-music> (accessed 14 March 2025).
- Tingen, Paul. "Secrets of the Mix Engineers: Bob Clearmountain". *Sound on Sound*, 2009, <https://www.soundonsound.com/techniques/secrets-mix-engineers-bob-clearmountain> (accessed 14 March 2025).
- Tingen, Paul. "Secrets of the Mix Engineers: Chris Lord-Alge". *Sound on Sound*, 2007, <https://www.soundonsound.com/techniques/secrets-mix-engineers-chris-lord-alge> (accessed 14 March 2025).
- Tingen, Paul. "Secrets of the Mix Engineers: David Pensado". *Sound on Sound*, 2007, <https://www.soundonsound.com/techniques/secrets-mix-engineers-david-pensado> (accessed 14 March 2025).
- Tingen, Paul. "Secrets of the Mix Engineers: Michael Brauer". *Sound on Sound*, 2008, <https://www.soundonsound.com/techniques/secrets-mix-engineers-michael-brauer> (accessed 14 March 2025).
- Tingen, Paul. "Secrets of the Mix Engineers: Tony Maserati". *Sound on Sound*, 2007, <https://www.soundonsound.com/techniques/secrets-mix-engineers-tony-maserati> (accessed 14 March 2025).
- Tingen, Paul. "Stuart White: Recording & Mixing Beyoncé". *Sound on Sound*, 2022, <https://www.soundonsound.com/techniques/stuart-white-recording-mixing-beyonce> (accessed 14 March 2025).
- White, Paul. *Basic Mixing Techniques*. Music Sales Limited, 2010.

