

Recording Analysis Paper

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1.0 Introduction and Background

In this analysis paper, I will compare two renditions of Chick Corea's world-renowned composition *Spain*: his original studio recording and Stevie Wonder's live performance in London (2008).

Spain is a widely recognizable jazz fusion tune that has become a standard [1]. The original composition features a variety of instruments, from lead instruments like flute and Rhodes to percussive elements such as castanets, drums, and shakers. To create its diverse soundscape, each instrument has its own pocket in the mix, contributing to the groove without overpowering others.

In 2008, Stevie Wonder recorded a live performance of *Spain* for his *Live at Last* tour in London to showcase his own vision for the piece. The audio quality was exceptional by the standards of a live recording as nearly every major instrument had dedicated technicians, multiple masters, Pro Tools, and recording engineers managing the live mix [2].

2.0 Metadata

Track	Attributes
Recording #1 Spain (original studio record)	Link to Apple Music: https://music.apple.com/ca/album/spain/1443203400?i=1443203937
	Artists: Chick Corea & Return to Forever Album: Light As a Feather
Recording #2 Spain (Stevie Wonder's Live recording in London)	Link to downloadable recording on Joey's Drive: https://drive.google.com/file/d/1pU0LBWNquicwMCP_j7W8eJIS6hetcu0k/view?usp=sharing Original Link on Youtube: https://youtu.be/Q3VJOl_XeGs?si=AOYqZUIJmWFE1vbH

	Artist: Stevie Wonder Tour: Live At Last
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3.0 Balance

From a listener's standpoint, both recordings strive for the same overall aesthetic: a festive atmosphere. However, they take different approaches in balancing the instruments to achieve this effect.

3.1 Studio Recording

The balance of this recording is achieved through a well crafted arrangement featuring ambient vocals, castanets, clapping, and even shouting. However, because it is a studio recording, the engineers were able to maintain a sense of "controlled chaos," ensuring that the various instrument groups do not clash. As a result, the overall recording sounds more polished, cohesive, and spacious.

In terms of the relative loudness of the instruments to one another, the flute is the most prominent (pan left, high frequency, and loud). It is followed closely by the Rhodes piano and background vocals, which play key roles in outlining the melodic parts of the song. The double bass and drums sit further back in the mix as they contribute to the groove without overpowering the lead instruments.

3.2 Live Performance

Stevie Wonder's live rendition captures the same festive energy, but the balance is less precise due to the sheer number of instruments competing for sonic space. The arrangement employs a heavier use of percussion (a main drummer and two additional percussionists), which helps fill the ambient space and drive the band's energy—though at times, it can be overly dominant. Additionally, rather than the controlled shouting and clapping of the studio recording, the live version captures the raw energy of the crowd, which further contributes to the festive mood. However, at times, the crowd noise can become overwhelming for the listener. While efforts were made to achieve a well-balanced mix—such as lowering the intake volume of the drums and percussion during solos—there are trade-offs when recording a larger ensemble. With more musicians in the mix, each performer has less space to work with, making it more challenging to maintain a good overall balance.

4.0 Dynamic Range

In the studio recording, the flute has the largest dynamic range among all the instruments. The other instruments operate within their own dynamic "bubbles," allowing them to adjust and make

room for one another. However, due to the lower maximum volume ceiling set for the studio recording, its overall dynamic range is comparatively smaller than that of the live recording.

In contrast, the live recording has a much larger dynamic range across the ensemble as a whole. It has a more “explosive” feel. This makes sense, as it features a larger number of instruments, allowing for more pronounced expansions and contractions as the song progresses. A clear example of this can be observed in the percussion and drums, where their volume and intensity shift dramatically depending on if they are accompanying a solo or being featured themselves. Additionally the live recording had instruments from all different frequency ranges that nicely fit into their respective frequency and contributed energy to the overall performance.

5.0 Tone Color

The studio recording has a darker mix, with the high-frequency elements, such as ride cymbals, being heavily suppressed. This results in a very apparent cutoff in the higher frequencies, and the overall mix leans more toward mid and low range frequency instruments like the Rhodes, Flutes, and Bass.

In contrast, the live recording has a wider mix, with a blend of flat and bright reverb. The high-frequency range of cymbals, such as crash cymbals and hi-hats, is preserved with bright reverb, allowing them to ring clearly. The low-frequency toms have less ringing, but the high-frequency ride cymbals exhibit noticeable ringing. Mid-range instruments like trumpet, sax, guitar, and keys also experience some ringing, which contributes to an overall increase in resonance from mid to high frequencies. Comparatively, the live mix provides substantially less bass boost compared to the studio mix, which gives the recording a more open, resonant feel, particularly in the mid and high ranges.

6.0 Spatial Image

The spatial images of the two recordings shed further insights on the width, and depth of the sounds we hear and the instrument placements.

6.1 Studio Recording Spatial Image

The studio recording’s instrument placement is concentrated towards the front (Figure 1), with main instruments like the double bass, Rhodes Electric Piano, and drums tightly positioned in the center of the sound field.

6.1.1 Rhodes Electric Piano

It’s clear that the Rhodes Electric Piano is not mic’d, as its sound primarily comes from a direct line connection, which is typical for Rhodes recordings. Some reverb is likely added during mixing to prevent the instrument from sounding too “in our face” and to create the illusion that it has traveled a bit of distance before reaching our ears.

Spatial Image: "Spain" Chick Corea Studio Recording

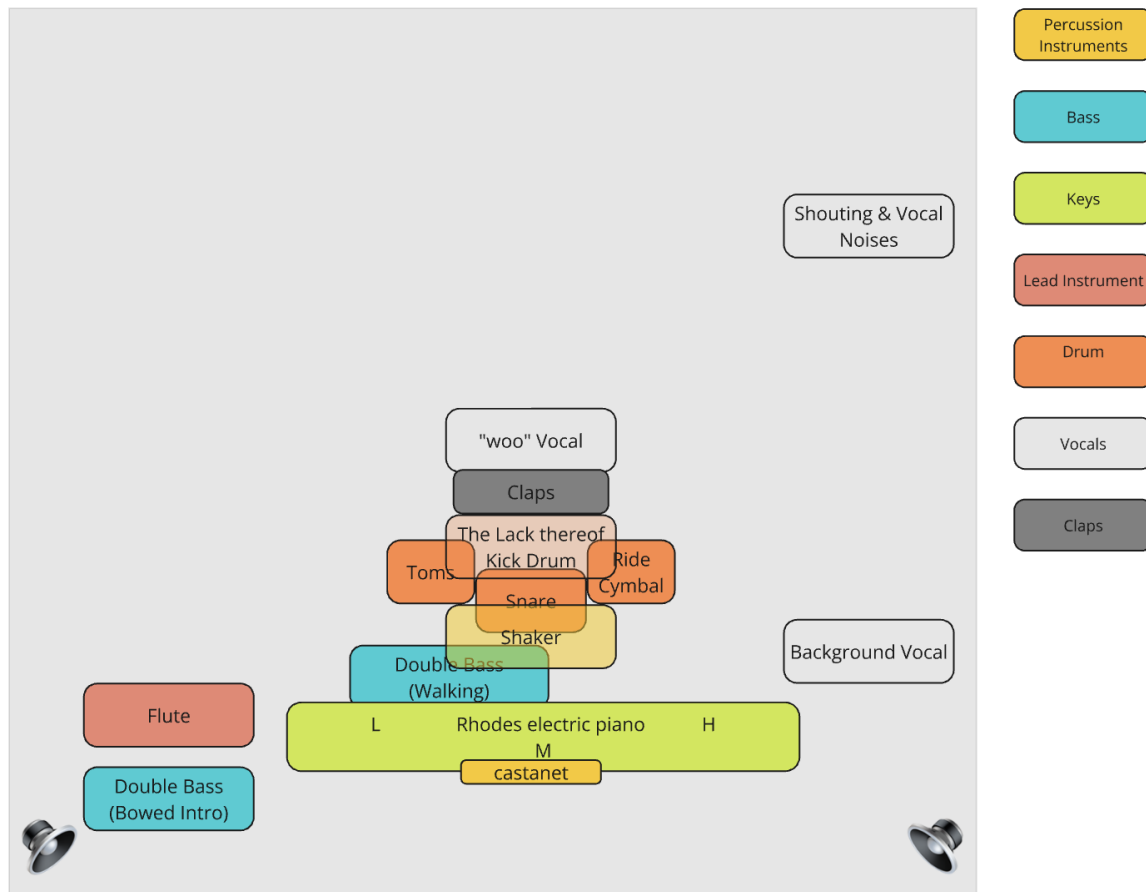


Figure 1. Chick Corea's Studio Recording Spatial Image

6.1.2 Double Bass

The Double Bass is panned in two ways during mixing. In the intro, it is hard panned left and played with a bow. However, throughout the song, it is panned slightly more toward the middle. As shown in Figure 1, when plucked and walked, it still leans towards the left end of the sound field.

The double bass is likely mic-ed at the F-Hole or closer to the upper-bout, as the picking sounds are clearly audible in the recording. Additionally, the performer's grunting sounds, which experienced high frequency roll-off, suggest that the mic is placed further down near the body of the bass during improvisation.

6.1.3 Flute

The flute stands out as a higher frequency instrument in the ensemble, likely emphasized by the producers. Its hard panning to the left makes it easily distinguishable from the rest of the

ensemble. The clear attack and breathiness of the flute, as if it is "talking into our ear," suggests that the mic was placed very close to both the instrument and the performer during recording.

6.1.4 Percussion

The shaker and castanet help fill the open space in the soundscape. The shaker, quieter and often buried behind the bass, provides background texture, while the castanet stands out more clearly, positioned near the front of the mix.

6.1.5 Drums

In this recording, the drums are centered, positioned behind the Rhodes and in front of the claps. Interestingly, there's no kick drum; instead, the drummer relies on the ride cymbal (slightly panned right), toms (slightly left), and snare (mono) to establish the groove. The typical quarter-note kick drum pattern is instead carried by the double bass and shaker.

6.1.6 Claps

The high-frequency roll-off of the claps suggests they are recorded from a distance, likely with a room mic. This is further supported by the echoing effect, as the claps hit the furthest wall and bounce back, creating a sense of space and distance in the sound. This helps introduce more depth to the mix.

6.1.7 Vocals

The vocals in the recording come from three main sources. Occasional "woo" sounds or grunting are captured centrally, likely from the drummer, percussionist, or bassist, with the mics intended for their instruments picking these up (commonly happens in jazz recordings). The melodic background vocals are panned left, while the shouting vocals are placed at the back to avoid overpowering the main ensemble, contributing to a balanced mix.

Compared to Stevie Wonder's live version, the studio recording has a more concentrated instrument placement towards the front, creating a unified feel with each instrument fitting tightly in its space while allowing background shouting and vocal noises to fill the gaps. The studio recording has fewer instruments, so it doesn't require as much use of proximity and distance, resulting in less depth compared to the live version.

6.2 Live Recording Spatial Image

Compared to the studio recording, the live version has more depth and layers due to the larger ensemble and more soloists. Stevie Wonder's group features at least 11 performers, while Chick Corea's has around 5, not counting vocals. This larger size naturally requires more space for the instruments to accommodate the soloists.

Spatial Image: "Spain" Stevie Wonder Live in London (2008)

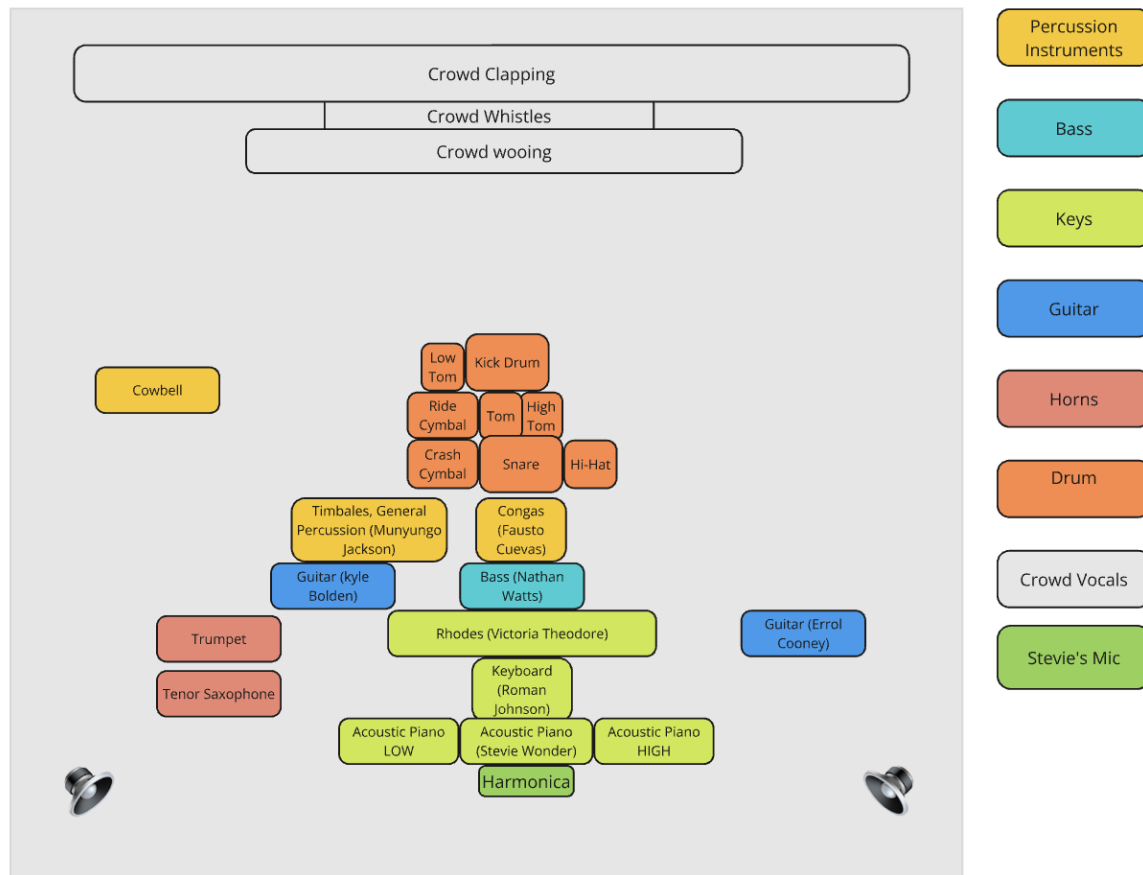


Figure 2. Spatial Image of Stevie Wonder's rendition of Spain from London (2008). Musician names are obtained from [3]

6.2.1 Horns

The horn section, consisting of a Trumpet and Tenor Saxophone, is hard panned left throughout the live recording, similar to the studio version where lead instruments were also panned left to emphasize their range. In this live recording, the panning shifts as each soloist is featured. This is an effective way to guide the listener's attention from left to middle to right, effectively distinguishing between the soloists.

6.2.2 Guitars

The two guitars are panned separately in the mix. During Errol's solo, his guitar is positioned as close as the horns but panned hard right. Meanwhile, Kyle's guitar is panned to the left, though not as far as the horns.

6.2.3 Keys

The keys section includes Stevie's Acoustic Piano, which has the closest proximity and the widest audio width, with its low and high ends spread across the left and right sides, especially during his solo. The Rhodes and pitch wheel keyboard are positioned closely behind the main acoustic piano, with the keyboard having the smallest audio width.

6.2.4 Percussion

The Congas are placed centrally with noticeable distance from the keys, suggested by the reverb. The Timbales are panned slightly to the left, while the cowbell is heard in the far left back.

6.2.5 Bass

The Bass is positioned between the mono guitar and the keys, acting as a glue that connects the rhythmic section to the keys.

6.2.6 Drum

The drums are my favorite instrument group in this recording. As shown in Figure 2, the toms, kick drum, snare, and cymbals are panned centrally. To emphasize the feel and create a 3D sound of the kit, individual micro-panning is used for each drum part. The drum solo from 10:10 in the mp3 showcases this perfectly. And unlike the studio recording, the kick drum is used consistently on each quarter note to drive the groove.

6.2.7 Stevie's Mic

Stevie's mic captures both his voice and harmonica during the intro, placed at the very front of the spatial image.

6.2.8 Crowd Vocals

Last but not least, the live recording captures the amazing crowd's clapping, woos, and whistles, which are heard from a distance. From a micing standpoint, this is because the crowd is positioned far from the musicians, making their voices sound like they're coming from the back of the space.

7.0 Sense of Space

The studio recording is characterized by a very dry and enclosed sound. Most instruments, such as the double bass and Rhodes, are recorded using close mics and a line connection, resulting in direct, crisp sounds with minimal reverb. The drums have a more spacious feel due to the use of overhead mics, but they still maintain a dry quality with a quick decay from the attack. The vocals and claps show some reflections, while the flute, although having more decay time, remains mostly dry and direct, recorded with either a room or close mic. Overall, the studio mix gives the impression of a compact space with minimal distance for sound to travel, creating a clean, dry, and crisp sound.

In contrast, the live recording has a much wetter, reverb-heavy mix. The keys and drums, in particular, have substantial reverb applied, with decay times around 0.5 seconds, making the overall space feel larger and more expansive. The percussion, including the cowbell, also adds to the reverb, and the vocals, similar to the studio recording, have both early and late reflections. Overall, the live recording feels open and spacious, with sounds having more room to travel, creating a more concentrated and denser mix.

8.0 References

- [1] “Spain (instrumental),” Wikipedia,
[https://en.wikipedia.org/wiki/Spain_\(instrumental\)#:~:text=%22Spain%22%20is%20an%20instrumental%20jazz,is%20considered%20a%20jazz%20standard](https://en.wikipedia.org/wiki/Spain_(instrumental)#:~:text=%22Spain%22%20is%20an%20instrumental%20jazz,is%20considered%20a%20jazz%20standard). (accessed Feb. 6, 2025).
- [2] J. Owston, Stevie Wonder: Spain,
<https://zeegrooves.blogspot.com/2012/07/stevie-wonder-spain.html> (accessed Feb. 7, 2025).
- [3] Stevie Wonder - Live at last (A wonder summer’s night),
<https://www.discogs.com/release/11725263-Stevie-Wonder-Live-At-Last-A-Wonder-Summers-Night> (accessed Feb. 7, 2025).