

# The Humans and the Machine: Perceptual Differences Between Collective and Solo Performances

Luis Ramirez  
York University, Canada

## Introduction

Hailed as “jazz’s new messiah” (Lewis 2015), Jacob Collier has been recognized as one of the most innovative musicians of our time. Not only is he pushing the limits of his music in compositional terms with his intricate and complex productions, but he is also breaking new ground with the use of technology in music performance.

This article analyzes and compares two performances of Jacob Collier’s song, “Don’t You Know”, released in July of 2016 on *In My Room*, an album praised for its “dazzling exuberance and virtuosity” (Fordham 2016). Before this release he was invited in 2015 to perform the song as part of the album *Family Dinner - Volume 2*, by the three-time Grammy winning band Snarky Puppy. This performance was distributed as a DVD special and uploaded to YouTube (groundUPmusicNYC 2016), where it has garnered over six million views. Around the same time and for the next two years Collier toured around the world with his cutting-edge One-Man Show, a display of multi-instrumental virtuosity where he simulates a digital one-man band using custom equipment built by Ben Bloomberg, an MIT graduate student. These performances include a vocal harmonizer that allows Collier to sing twelve-part vocal harmonies and a series of looping stations for various instruments, plus a video element generated from 3D cameras that enable him to replicate multiple iterations of his image that are projected onto a screen (Cawley 2017).

The parameters in each performance are similar – the same song, with the same singer, in front of a live audience and a virtual audience participating through the YouTube comments. In addition, both videos were created with a high-quality production and multi-camera setups that facilitate an immersive experience for the online viewers. These features isolate the *performer* factor and allows the following questions to be addressed: what are the differences when performing as an individual versus a collective? Are these differences reflected in the audience’s discourse and preferences? What is uniquely achievable in each specific format and how is the message more effectively conveyed?

## One-Man Show Analysis

The structural differences between versions are colored and will be discussed in the corresponding section.

Section	INTRO	VERSE 1	PRE-CHORUS 1	CHORUS 1	INTERLUDE 1	VERSE 2	PRE-C 2
Length (measures)	20	16	8	8	6	16	8
Subphrases	4m x 5	4m x 4	4m x 2	4m x 2	5m   1m	4m x 4	4m x 2
Measure	0   20	36	44	52	57   58	74	82
Time Signature	7 4		5 4	7 4	5 4   3 4	7 4	5 4
Timecode	00:05	00:57	01:39	01:54	02:15	02:26	03:07

Section	PRE-C 2	CHORUS 2	PIANO SOLO			INTERLUDE 2	VERSE 3	PRE-C 3	CHORUS 3	OUTRO	
Length (measures)	8	8	40			6	16	8	8	64	
Subphrases	4m x 2	4m x 2	4m x 6	4m x 2	4m x 2	5m   1m	4m x 4	4m x 2	4m x 2	4m x 4	4m x 12
Measure	82	90	114	122	130	135   136	152	160	168	184	232
Time Signature	5 4	7 4	5 4	7 4	5 4	3 4	7 4	5 4	7 4		5 4
Timecode	03:07	03:22	03:43			05:23	05:33	06:15	06:30	06:51	09:04

TABLE 1. Structure of Solo version.

The solo version contains certain stylistic elements that can be traced to funk, soul, and other genres within the spectrum of jazz fusion.

INTRO. The song begins with a continuous stream of eighth notes playing a Bb/Eb perfect fourth in a 7/4 time signature. Collier begins by playing a pattern on different instruments each measure, sometimes allowing a full measure of looping to occur without him so he can move around when the instruments are far apart.

The first measures of the song illustrate the dynamic that will unfold during the rest of the performance: Collier will be initiating different loops with several instruments adding layers to the song, a common dynamic of other live looping performers. However, it is crucial to note that not all the sounds heard are recorded by him in real time, there are accompanying tracks that fill in the rest of the parts. This factor became a point of contention in the comments, with some commenters expressing disappointment or disbelief like: “Well half of it are samples here and definitely not live. Agreed? Now he is certainly great, but in this show I’m not even sure he sings live...” (jjj13031984 2018); and “Too difficult to recognize the live effort with the precoded(sic) vocals and sounds, except for the brilliant solos. I prefer Jacob with a band” (lalloghin 2016).

VERSE 1. Collier lands every downbeat on a five-part Eb lydian chord, and for the rest of the line he sings diatonically within the C dorian mode, moving in parallel with triads harmonizing the melody. It is in this verse when the drum kit groove begins in the playback, alongside a bass synthesizer and other percussion sounds.

PRE-CHORUS 1. The pre-chorus feels more energetic by reducing the time signature to 5/4 and due to an increase in the percussion activity.

CHORUS 1. This first chorus returns to the 7/4 pulse and the C dorian zone. The chorus makes it evident that Collier is not playing all the sounding instruments; At the same time, a distinct piano riff appears during the second phrase. This gesture will become a recurring motif throughout the song.



FIGURE 1. Piano riff.

INTERLUDE. The texture dramatically changes during this interlude with claps on a seven-eighth note rhythmic pattern, glittery sounds of bells, and synthesizer chords above a 5/4 groove.

VERSE 2. During this verse Collier still uses the first measure of each phrase to address the audience or to alter the held chord. In the latter case, each new line of the verse presents a slightly more chromatic chord reflected with the visual effects, making it stand out from the previous verse.

PRE-CHORUS 2. The second pre-chorus is almost identical to the previous one, But there are two new musical gestures: The first one is a frenzied “out-of-tune” synthesized banjo line moving in fast sixteenth notes with angular motion leading into the second one, a quick riff played on MIDI brass. The banjo riff becomes a staple of this version, and while Collier never performs it in real time, it will appear several more times in extended iterations to contribute to the hectic character of the song.



FIGURE 2. Banjo Frenzy.

CHORUS 2. The second chorus is very similar to the previous one, although the piano riff is now played in both phrases, finishing with the banjo riff appearing briefly.

PIANO SOLO. This section is one of the main differences between versions, as expected from the improvisational nature of a piano solo. The sounds in the background include atmospheric synth pads, a tambourine and snare accenting beats three and seven, very subtle but fast hi-hats, and a bass line that emphasizes beats one and three alternating between C and Bb pitch centers.



FIGURE 3. Bass riff.

The general mood at the beginning is that of serenity, but the subtle internal activity of the drum kit and bass slowly grow in volume, increasing the number of events happening per beat. This textural growth is given even more momentum with Collier's solo, which morphs from gentle melodic lines into a quick line from the bottom of the piano to the top. His virtuosity is immediately on display with constantly syncopated rhythms, a flurry of notes covering the extremes of the piano, and fast interlocked chords that show his proficiency with the instrument.

INTERLUDE 2. This interlude follows the same harmonic and rhythmic content as the previous one and is not present in the Snarky Puppy version.

VERSE 3. The intensity of this transition is further amplified with an abrupt modulation one half step above. Collier sustains the first line of the verse on an (E, F#, B) chord for a full measure, creating suspense and causing a reaction from the audience. The next line is an even more impactful moment, where he sings a seven-part harmony chord progression from C#m<sup>9/11</sup> to E<sup>9/13</sup> arriving to an F#<sup>9/11/13</sup> on the downbeat of the next measure. This specific chord progression causes several of the members of the audience to gasp in awe. It is possible that this reaction is caused by the addition of a deep bass line for the first time over the word "world" and under the heavily harmonized melody. Combined with the subsequent dramatic silence, this provides an exemplary use of Collier's manipulation of harmony. It is worth pointing out that this precise moment is the most referenced timecode of the video in the comments, with over ten commenters sharing their emotional reaction to this specific moment.

PRE-CHORUS 3. The only difference to previous instances of the pre-chorus is that the accompanying track now includes more of the synthesized brass sounds and the banjo riff previously mentioned.

CHORUS 3. The music stealthily modulates back to the original key one half-step below for the third and final chorus.

OUTRO. The texture is suddenly reduced to only a few instruments playing atmospheric gestures. The opening perfect fourth on the piano is brought back subtly, in combination with an almost pitch-less organ, sparse percussion elements, and the bass riff mentioned before.

The music changes one final time to a 5/4 signature that introduces different musical elements present in the song thus far. During this highly active outro Collier continues to switch between piano, bass, and synthesizer, before finally settling on the drum kit. Several layers begin to fade out only leaving by the very end the piano riff, a kaleidoscopic flurry of bells, and Collier on the drums.

## *Snarky Puppy* Band Analysis

This version was arranged by Jacob Collier and Michael League, bandleader of Snarky Puppy. The structure is mostly the same, with some differences in the duration of the first interlude and the piano solo, and a completely rearranged outro. The texture tends to be much sparser, lacking the additive layers of loops, with clearer stylistic features of funk and jazz fusion. Nonetheless, there are structural cues that are still followed, but by nature of the setup they tend to be a lot more flexible and improvisational. This interactivity between musicians is in stark contrast to the stratified growth of the solo version, with echoic responses to each other's gestures that build up the tension organically.

Section	INTRO	VERSE 1	PRE-CHORUS 1	CHORUS 1	INTERLUDE 1	VERSE 2	PRE-C 2	
Length (measures)	20	16	8	8	8	16	8	
Subphrases	4m x 5	4m x 4	4m x 2	4m x 2	4m x 2	4m x 4	4m x 2	
Measure	0	20	36	44	52	60	76	84
Time Signature	7 4		5 4	7 4	5 4	7 4	5 4	
Timecode	00:00	00:53	01:35	01:50	02:10	02:26	03:07	

Section	CHORUS 2	PIANO SOLO	VERSE 3	PRE-C 3	CHORUS 3	INTERLUDE 2	CHORUS 4	OUTRO	
Length (measures)	8	64	16	8	8	8	16	16	12
Subphrases	4m x 2	4m x 16	4m x 4	4m x 2	4m x 2	4m x 2	4m x 4	4m x 4	N/A
Measure	92	156	172	160	168	176	192	208	220
Time Signature	7 4			5 4	7 4				
Timecode	03:22	03:43	06:32	07:14	07:29	07:50	08:11	08:53	10:12

TABLE 2. Structure of Band version.

The layout of the stage plays a substantial factor in the relationship between the musicians and the audience. The solo version is presented in a typical proscenium stage, while the Snarky Puppy layout is rather unique – it consists of three concentric rings, with some members of the audience in the very center, the musicians surrounding them in an outer circle, and another layer of audience members enclosing them. Furthermore, every listener and musician in the venue is wearing high-quality headphones, adding the artistry of the sound engineer into the picture. This rare setup strengthens the collective ethos of the band by removing the focus from a single individual. It also allows the performers themselves to have visual contact and direct communication with each other and encourages the listeners to identify with the way others are enjoying the performance, deepening the experience.

**INTRO.** The song begins with the same repeated perfect fourth ostinato as in the solo version but on a synthesizer and with no hint of the pulse. This pattern combined with sporadic interjections of other instruments create even more ambiguity and buoyancy.

**VERSE 1.** A big difference from the previous version is that Collier's only instrumental changes are between playing the piano and singing with his harmonizer.

The instrumental accompaniment is also much cleaner, with minimal percussion and occasional organ and bass interjections. One of the main reasons for this sparser texture is because the drum kit only emphasizes beats one and three, as opposed to beats one, three, five, and seven of the solo version. This subtle difference gives these measures a 7/4 feel instead of a combination of 4/4 + 3/4. This is a key factor in the distinct grooves between versions.

**PRE-CHORUS 1.** Although both versions contain similar percussion activity in this section, their presence is less intrusive in this version specifically because they are human performers.

**CHORUS 1.** By the time the chorus begins, it becomes evident that Snarky Puppy is more concerned with cohesion on a broader scope. The metric feel discussed in verse 1 is symmetrically applied to the larger structures – the previous sections feel connected as a whole by maintaining the same musical elements, while the continuity of the solo version feels disrupted by constant changes every four measures.

**INTERLUDE 1.** Instead of dealing with the complicated ambiguity of the interlude 1 in the solo version, this transition is simplified to only eight measures of 5/4, dismissing the metric changes. A reasonable assumption is that this change was made to facilitate the coordination between performers.

**VERSE 2.** The second verse resembles the solo version with this piano riff appearing consistently for the first time, alternating between the piano and the brass between phrases. The introduction of this riff increases the overall activity, with even shorter gestures in the guitars, bass, sousaphone, and organ.

**PRE-CHORUS 2.** This section follows the same framework as the previous one, with added piano and organ interjections between phrases, but the banjo riff illustrated in FIGURE 2 does not exist at all.

**CHORUS 2.** This chorus contains even more brass interjections with hits between each line. While the narrative arch does seem to grow gradually, its character is considerably less dramatic than in the solo version.

**PIANO SOLO.** The piano solo in this version presents a suddenly softer and relatively simpler and sparser texture. The most noticeable difference is the lack of a continuous groove. The only sense of pulse is given with a subtle bass line and at a later point with the drums, but initially there is no metric emphasis.

As the piano solo develops, the drums gradually provide a consistent motor rhythm, but still with no emphasis on the 7/4 time signature. The distribution of fast sixteenth notes in the snare drum with one drummer and in the hi-hats with another allow the textural density to grow without it becoming too overwhelming. Almost every performer contributes texturally with a balanced participation, collectively growing towards the climax of the song. The tension is further intensified by the dynamic camera shots and the restlessness of the musicians looking at each other to coordinate the arrival.

**VERSE 3.** The absence of an interlude allows the tension to be released directly into the third verse with a modulation one half-step above with a majestic E<sup>9</sup> chord. The expert unification of all these elements makes this one of the most memorable moments of the performance.

**PRE-CHORUS 3.** The narrative arch momentarily decreases for this section with the percussion activity immediately returning to normal, following the same format as the two previous ones.

**CHORUS 3.** This chorus is a radical contrast from previous choruses in both this version and the solo version. The entire band stops playing, and Collier is left singing softly with his harmonizer. The only similarity is the modulation one half-step below.

**INTERLUDE 2.** This section instantly changes the character, turning into a festive return of the musical motifs presented throughout the song. A new bass riff exclusive to this version appears in this section, illustrated in FIGURE 4.



FIGURE 4. Heavy bass riff.

This bass line is played on the sousaphone, electric bass, synthesizer, electric guitar, and the piano. It heavily accentuates every two beats and creates a thick groove that alternates with brass hits and sustained organ chords, which in combination with the active percussive hits make it one of the grooviest sections of the entire piece.

CHORUS 4. To maintain this euphoric atmosphere, an additional chorus is sung by the back up singers while the heavy bass riff continues. Every performer incorporates their respective riffs to the mix like a parade of juxtaposed musical gestures.

OUTRO. The energy is slowly reduced in this final section and as the other instruments disappear from the mix, a poignant piano solo is left as the last surviving element with any sense of pulse almost eliminated. The character of this piano solo is somewhat melancholic, a profound antithesis to the highly energetic ending of the solo version.

### Comment Analysis, *One-Man Show* Solo Version



FIGURE 5. Comment analysis on Solo version.

For this analysis, the comments left on each video were and grouped into six overarching categories after recurring characteristics emerged between both versions. A classification system was created to easily visualize the discourse between users. The six categories are *Praise*, *Observations*, *Performative*, *Criticism*, *Music Related*, and *Musicians*. This diagram displays the categories in sizes proportional to the approximate number of comments in each one as a way of making the main topics of discussion more easily evident.

The total number of comments at the time of this analysis is 404, and this diagram shows that more than half of the comments are some kind of *praise* for Collier's performance. Some commenters praise very specific aspects, such as the visuals: "Amazes me every time. Love the live video looping, so cool!" (Potter 2016); the style of the music: "He is the source of a new genre, it will not be easy for others to copy him, indeed mindblowing..." (Gerard 2016); or his talent: "No human being on earth at this time has this much musicality. Unparalleled" (NotSereyus 2019). The second largest category is a very general category of *observations*, where users simply engage with others or point out their favorite parts of the video, referencing the timecode for others to see: "05:44 blew my mind" (Alvarez 2016). This also includes observations about Collier's sartorial characteristics or any kind of humor: "AKA How To Burn Calories If You're A Musical Genius" (theKRUGMEISTER 2019).

An interesting detail emerges with the third largest category, that of *performative* elements. Due to the nature of the setup, the innovative performative elements are at the center of the discussion: "How is this even possible? Could someone explain how this performance works? Lots of playback and loops but it contains a secret" (Alvarado 2016). Within the scope of these comments some people defend the solo rendition: "...limiting himself to piano and voice could be OK, but this format shows so much of his talent, not just as a composer but as a performer too" (sidenotes 2016); yet a larger percentage of them explicitly stated their preference of a band setup over a solo rendition: "Great music but would sound so much better with a band" (Muntal 2016).

The next category covers any kind of *criticism*. Here, an interesting phenomenon occurs where every negative comment almost always elicits a response defending Collier's musical abilities. The following is a good example, where a user remarks: "...I'm sure it took masses of talent to put together... but more simplicity, lyricism, melody, and reaching out to your audience would make your music a lot more approachable" (Harrold 2016) and a user replies: "Simple minds probably won't find this melodic but to others it's just perfect" (UnicornHorn 2016).

The last two categories involve music in some way, the first one includes *music related* topics and the last one is about *musicians*. The former includes discussions revolving around the engineering of Collier's setup: "As a live looper myself the fact that he's doing this complex high level stuff and it's all phase-lock-looped without one problem blows my mind" (aliensporebomb 2016); or specific aspects in the construction of the music: "When you can make it groove while alternating between 7-2 and 5-4, you are a genius" (Steer 2017). The final category groups users that describe parallels with other musicians: "He and Beardyman should collaborate together!" (AC/KC 2016); and while Snarky Puppy does get mentioned, it is only a few instances: "He doesn't even need the entire snarky puppy for this song" (Sibarani 2018).



## Comment Analysis, *Snarky Puppy* Band Version

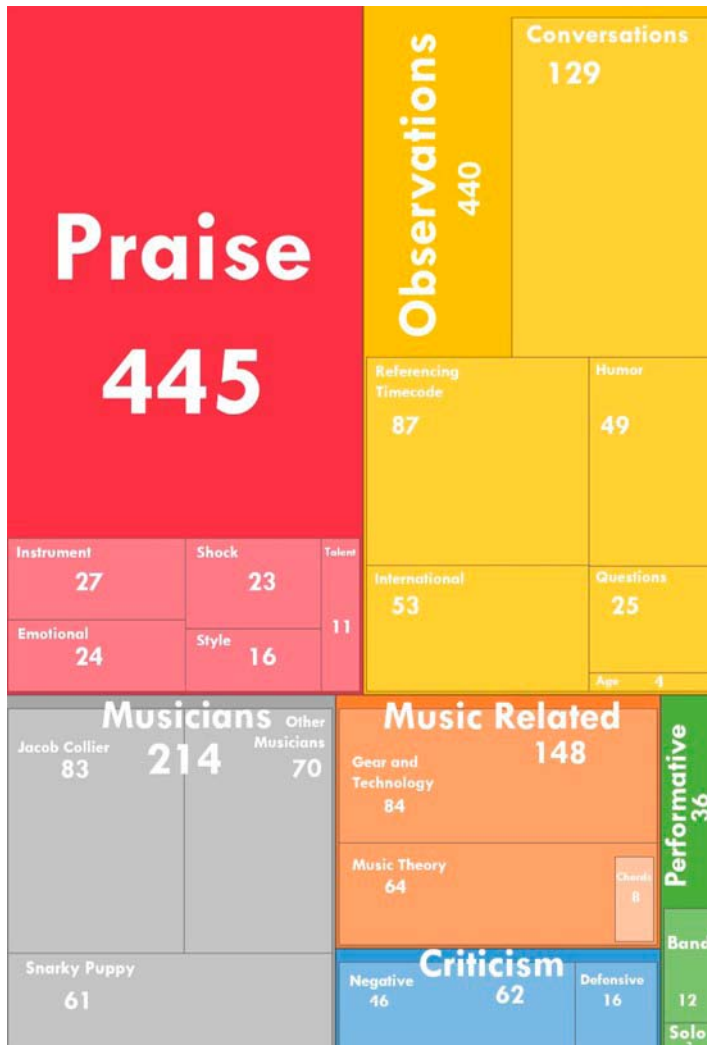


FIGURE 6. Comment analysis on Band version.

The sample size for this video is significantly larger than the other version, with a total of 1132 comments left on the video. The Snarky Puppy version similarly presents a proportional distribution of comments between the *praise* and *observations* categories. The praise category includes different subcategories, such as praise to specific instruments: “Wowwww, they are so tight. 3 percussionists perfectly keeping it together. Perfect balance... Musical Geniuses” (TheUnorthodoxGears 2017); or stating a sense of shock usually with the use of expletives: “Damn..... Damn.....Just.....damn...” (White 2016). The *observations* category reflects a similar distribution of comments, but there is a larger presence of general questions being asked: “Never heard a sousaphone before, could someone try and indicate a part in this to me where it can be heard really clearly?” (ForTheOracle 2016).

The most important difference to note between renditions is the reversal between the *musicians* and the *performative* categories. Besides *praise*, the main discourse in the comments was about *musicians*, whether specifically mentioning Collier or any of the Snarky Puppy members: “Seeing Michael and Big Ed interact with each other is so much fun” (I\_Like\_It\_Here 2017); or pointing out the similarities to other artists they know and suggesting collaborations: “imagine this Jacob Collier + Joe Dart + Bernard Purdie + Cory Henry heck me it would be fantastic” (Tone 2017). It is interesting to note how the commenters feel the need to share their stylistic taste and experiences when they witness the hybridity of this performance: “Theres(sic) Zappa, Manhattan Transfer, Bruce Hornsby, and more buried in here” (Dean 2017).

The *music related* category centers around the gear and technology used and music theory topics. The main discussions in the former pertain to the brand of headphones used: “They were Audio Technica M50x. They sounded incredible! Highly recommended” (Layne 2016); and choice of instruments: “Looks like the upper keyboard—Dave Smith Prophet ‘08—is being used with some type of harmonizer” (Williams 2019); but there is also some

discussion regarding the format of the performance: “Wait. Wait. Is the whole audience wearing headphones? If so that had to be the most amazing experience ever. Everyone is in studio headphone land. An engineers’ dream” (Holder 2018).

The last two categories resemble the previous version, with the exception that in the *criticism* category there is a higher number of negative comments such as: “great musicianship, incredible technique. but, where’s the music? where’s the soul? sorry” (Taucher 2017); and “Too smart, too happy, too self indulgent, too expensive, not for me” (Bourehim 2017). Only a handful of comments specifically discuss *performative* elements of this rendition: “Its(sic) so beautiful too(sic) see all the people in this room connected...from each musician, vocalist and audience member...transending(sic) the boundaries of race, gender and culture...bonded by the sound, magnificently so...” (Lampson 2017); with a higher number of commenters expressing their preference for the collective format over the solo format: “This collective I like much better than his solo performances. Keep this up and engage more Artists. That is keeping music LIVE and alive” (Kyd 2018).

## Conclusions

The challenge of Collier’s One-Man show is compromising the complex construction of his composition with the simplicity of only one person on stage. However, simplifying or removing layers to make room for accessibility and realism on stage might limit Collier’s characteristic compositional style. While innovative in its use of technology and performance, the setup was rather complicated, and he stopped performing this show after touring with it for a few years. In an interview with Amelia Mason for the WBUR Boston NPR radio station, Collier expressed: “we pushed the one-man show pretty hard, and we felt it hit its limits at a number of points. [...] The setup worked great for audiences of 2,000, but not so much 20,000” (Mason 2018).

**MEDIUM’S PERCEPTION.** Despite being the same song, the change of medium from an engineered solo performance to a vibrant collective performance resulted in different perceptions from the audience. The comments show that there is an explicit shift in focus from performative elements in the solo rendition to discussions about musicians in the band version. the hybridity in the Snarky Puppy version invites viewers to discuss their musical preferences, and the conversation is more focused on the stylistic elements of the music. On the other hand, the discussion in the solo version is geared towards compositional elements and the complexity and engineering of the work itself. This could mean that the distribution of the instrumental layers to other musicians mitigates the weight of carrying an entire band on the shoulders of a single person and suggests that the perception of complexity can be informed by the rendition.

**VENUE AND VISUAL ASPECTS.** The visual engagement is indispensable in the Snarky Puppy version, not only for the online viewers but for the audience at the venue. There is something powerful about observing the enthusiastic musicians passionately moving to the beat. The unique layout of the venue creates open channels of communication within the audience and the performers, and such a layout invites the listeners to imitate with their own body and engage in a collective experience. While the visual projections in the solo version can add a semiotic dimension to the performance, it can also distract and detract from the listening experience. The comments show almost no discourse about the visual elements, and although they may be a more impactful factor for the audience at the venue, it is hard to ascribe any vital value to them.

**HUMAN VS. MACHINE.** The principal factor that distinguishes both performances comes down to the use of either pre-recorded tracks or performers. This is a key criticism of the One-Man Show setup, and although Collier uses technology as an extension of himself, it lacks the human nuance and removes the communal experience. Ben Bloomberg himself laments the distance created by the technology, stating that:

In a lot of big shows, the technology is actually upstaging the people, because there are timers, click tracks and the humans have to stay synchronized to the tech. The musicians can’t perform naturally, which is sad, because that’s the most moving part – that’s where the emotional connection is. (Lacey 2016).

Even reviews of the *In My Room* album point out this drawback, saying that “this album is impressive but may leave more than a few starved for something that sounds human” (Donelson 2016).

**COMMUNICATION.** Ultimately, one of the fundamental purposes of music is to communicate effectively with the audience. Collier’s One-Man Show is a fascinating display of the symbiotic relationship between a talented musician and cutting-edge performative technology. However, by opting for a solo rendition Collier sacrifices the ability to manipulate multiple parameters of his composition in real time, weakening his communicative potential. This control of nuance is advantageously present in the Snarky Puppy version with the distribution of



gestures amongst a large number of skillful musicians. Their human contribution to the different layers of the mix, in combination with the layout of the venue, make the music easier to communicate, relate, and digest. Both performances of “Don’t You Know” have meaningful value to contribute, but the Snarky Puppy collaboration stands out as a more impactful interpretation due to their effective manner of communication with the audience through their controlled nuance of musical gestures.

## Bibliography

- AC/KC. 2016. Comment on: Collier, J. *Don't You Know - Jacob Collier (Live @ Village Underground, London)*. [Online video]. Available at <<https://www.youtube.com/watch?v=c5FqpddnJmc&lc=Ugh1ePUzOZ4dt3gCoAEC>> [Accessed 25 Mar. 2019].
- aliensporebomb. 2016. Comment on: Collier, J. *Don't You Know - Jacob Collier (Live @ Village Underground, London)*. [Online video]. Available at <<https://www.youtube.com/watch?v=c5FqpddnJmc&lc=Ugj71H3OqWnxdHgCoAEC.8GlX3VPJbKc8Gof1AboptH>> [Accessed 25 Mar. 2019].
- Alvarado, M. 2016. Comment on: Collier, J. *Don't You Know - Jacob Collier (Live @ Village Underground, London)*. [Online video]. Available at <<https://www.youtube.com/watch?v=c5FqpddnJmc&lc=UgjcRwHFiiGFCngCoAEC>> [Accessed 25 Mar. 2019].
- Alvarez, H. 2016. Comment on: Collier, J. *Don't You Know - Jacob Collier (Live @ Village Underground, London)*. [Online video]. Available at <<https://www.youtube.com/watch?v=c5FqpddnJmc&lc=UgjiIqBnuUtwbHgCoAEC>> [Accessed 25 Mar. 2019].
- Bourehim, Y. 2017. Comment on: groundUPmusicNYC. *Snarky Puppy Feat. Jacob Collier & Big Ed Lee - "Don't You Know" (Family Dinner Volume Two)*. [Online video]. Available at <<https://www.youtube.com/watch?v=eqY3FaZmh-Y&lc=UggS7M6of4SdL3gCoAEC>> [Accessed 25 Mar. 2019].
- Cawley, T. 2017. *Jacob Collier isn't the only wizard behind his one-man show - The Boston Globe*. [Online] Available at: <<https://www.bostonglobe.com/arts/music/2017/08/31/jacob-collier-isn-only-wizard-behind-his-one-man-show/FEqFE8HPT6hQGeLRbU95FJ/story.html>> [Accessed 25 Mar. 2019].
- Dean, J. 2017. Comment on: groundUPmusicNYC. *Snarky Puppy Feat. Jacob Collier & Big Ed Lee - "Don't You Know" (Family Dinner Volume Two)*. [Online video]. Available at <<https://www.youtube.com/watch?v=eqY3FaZmh-Y&lc=Ugh6zikomP5N3gCoAEC>> [Accessed 25 Mar. 2019].
- Donelson, M. 2016. *In My Room - Jacob Collier*. [Online] Available at: <<https://www.allmusic.com/album/in-my-room-mw0002944025>> [Accessed 25 Mar. 2019].
- Fordham, J. 2016. *Jacob Collier: In My Room review – dazzling exuberance and virtuosity*. [Online] Available at: <<https://www.theguardian.com/music/2016/jun/30/jacob-collier-in-my-room-jazz-cd-review-qwest-membran>> [Accessed 25 Mar. 2019].
- ForTheOracle. 2016. Comment on: groundUPmusicNYC. *Snarky Puppy Feat. Jacob Collier & Big Ed Lee - "Don't You Know" (Family Dinner Volume Two)*. [Online video]. Available at <<https://www.youtube.com/watch?v=eqY3FaZmh-Y&lc=Ugh70xjI8iaH2HgCoAEC>> [Accessed 25 Mar. 2019].
- Gerard, R. 2016. Comment on: Collier, J. *Don't You Know - Jacob Collier (Live @ Village Underground, London)*. [Online video]. Available at <<https://www.youtube.com/watch?v=c5FqpddnJmc&lc=Ugj71H3OqWnxdHgCoAEC>> [Accessed 25 Mar. 2019].
- Harrold, R. 2016. Comment on: Collier, J. *Don't You Know - Jacob Collier (Live @ Village Underground, London)*. [Online video]. Available at <<https://www.youtube.com/watch?v=c5FqpddnJmc&lc=Ugi6mDbVKhQ4uXgCoAEC>> [Accessed 25 Mar. 2019].
- Holder, A. 2018. Comment on: groundUPmusicNYC. *Snarky Puppy Feat. Jacob Collier & Big Ed Lee - "Don't You Know" (Family Dinner Volume Two)*. [Online video]. Available at <<https://www.youtube.com/watch?v=eqY3FaZmh-Y&lc=UgyFAorwsAsztjUNRFV4AaABAgt>> [Accessed 25 Mar. 2019].
- I\_Like\_It\_Here. 2017. Comment on: groundUPmusicNYC. *Snarky Puppy Feat. Jacob Collier & Big Ed Lee - "Don't You Know" (Family Dinner Volume Two)*. [Online video]. Available at <<https://www.youtube.com/watch?v=eqY3FaZmh-Y&lc=UghpEnt1bw13qngCoAEC>> [Accessed 25 Mar. 2019].
- jjj13031984. 2018. Comment on: Collier, J. *Don't You Know - Jacob Collier (Live @ Village Underground, London)*. [Online video]. Available at <[https://www.youtube.com/watch?v=c5FqpddnJmc&lc=Ugy\\_KPSq9Q0cm1zIkcR4AaABAgt](https://www.youtube.com/watch?v=c5FqpddnJmc&lc=Ugy_KPSq9Q0cm1zIkcR4AaABAgt)> [Accessed 25 Mar. 2019].
- Kyd, L. 2018. Comment on: groundUPmusicNYC. *Snarky Puppy Feat. Jacob Collier & Big Ed Lee - "Don't You Know" (Family Dinner Volume Two)*. [Online video]. Available at <<https://www.youtube.com/watch?v=eqY3FaZmh-Y&lc=Ugx2BUAPmp8RO1JR7Ht4AaABAgt>> [Accessed 25 Mar. 2019].
- Lacey, S. 2016. *Behind the Artwork: Ben Bloomberg Creates Live Performance Systems for Virtuoso Multi-instrumentalist Jacob Collier - Arts at MIT*. [Blog]. Available at: <<https://arts.mit.edu/behind-artwork-ben-bloomberg-creates-live-performance-systems-virtuoso-multi-instrumentalist-jacob-collier>> [Accessed 25 Mar. 2019].
- lalloghin. 2016. Comment on: Collier, J. *Don't You Know - Jacob Collier (Live @ Village Underground, London)*. [Online video]. Available at <<https://www.youtube.com/watch?v=c5FqpddnJmc&lc=Ugg5d6mHm011EngCoAEC>> [Accessed 25 Mar. 2019].
- Lampson, C. 2017. Comment on: groundUPmusicNYC. *Snarky Puppy Feat. Jacob Collier & Big Ed Lee - "Don't You Know" (Family Dinner Volume Two)*. [Online video]. Available at <<https://www.youtube.com/watch?v=eqY3FaZmh-Y&lc=UgihbRhNwawIkHgCoAEC>> [Accessed 25 Mar. 2019].
- Layne, C. 2016. Comment on: groundUPmusicNYC. *Snarky Puppy Feat. Jacob Collier & Big Ed Lee - "Don't You Know" (Family Dinner Volume Two)*. [Online video]. Available at <<https://www.youtube.com/watch?v=eqY3FaZmh-Y&lc=UgjcQ9EpFusNHHgCoAEC.8EyypeWvXxE8jXIZd4VhL>> [Accessed 25 Mar. 2019].
- Lewis, J. 2015. *Jacob Collier review – jazz's new messiah*. [Online]. Available at: <<https://www.theguardian.com/music/2015/jul/03/jacob-collier-review-ronnie-scotts-jazz-new-messiah>> [Accessed 25 Mar. 2019].
- Mason, A. 2018. *Reaching Tech's Limit, YouTube Phenom Jacob Collier Seeks A Human Touch*. [online] Available at: <<https://www.wbur.org/artery/2018/12/05/jacob-collier-youtube-phenom>> [Accessed 25 Mar. 2019].
- Muntal, J. 2016. Comment on: Collier, J. *Don't You Know - Jacob Collier (Live @ Village Underground, London)*. [Online video]. Available at <<https://www.youtube.com/watch?v=c5FqpddnJmc&lc=Ugi8VLw-TujM73gCoAEC>> [Accessed 25 Mar. 2019].
- NotSereyus. 2019. Comment on: Collier, J. *Don't You Know - Jacob Collier (Live @ Village Underground, London)*. [Online video]. Available at <<https://www.youtube.com/watch?v=c5FqpddnJmc&lc=UgzgD616qkTP5BOOChZ4AaABAgt>> [Accessed 25 Mar. 2019].
- Potter, J. 2016. Comment on: Collier, J. *Don't You Know - Jacob Collier (Live @ Village Underground, London)*. [Online video]. Available at <[https://www.youtube.com/watch?v=c5FqpddnJmc&lc=Uggi\\_uz1ORaDMXgCoAEC](https://www.youtube.com/watch?v=c5FqpddnJmc&lc=Uggi_uz1ORaDMXgCoAEC)> [Accessed 25 Mar. 2019].
- Sibarani, O. 2018. Comment on: Collier, J. *Don't You Know - Jacob Collier (Live @ Village Underground, London)*. [Online video]. Available at <[https://www.youtube.com/watch?v=c5FqpddnJmc&lc=UgyB0t-9iTuJjgH\\_zNI4AaABAgt](https://www.youtube.com/watch?v=c5FqpddnJmc&lc=UgyB0t-9iTuJjgH_zNI4AaABAgt)> [Accessed 25 Mar. 2019].
- sidenotes. 2016. Comment on: Collier, J. *Don't You Know - Jacob Collier (Live @ Village Underground, London)*. [Online video]. Available at <<https://www.youtube.com/watch?v=c5FqpddnJmc&lc=UghPG4uF0c50NXgCoAEC>> [Accessed 25 Mar. 2019].
- Steer, C. 2017. Comment on: Collier, J. *Don't You Know - Jacob Collier (Live @ Village Underground, London)*. [Online video]. Available at <<https://www.youtube.com/watch?v=c5FqpddnJmc&lc=UgimjYI9svn9THgCoAEC>> [Accessed 25 Mar. 2019].
- Taucher, P. 2017. Comment on: groundUPmusicNYC. *Snarky Puppy Feat. Jacob Collier & Big Ed Lee - "Don't You Know" (Family Dinner Volume Two)*. [Online video]. Available at <<https://www.youtube.com/watch?v=eqY3FaZmh-Y&lc=UggMAIfRtiXwzXgCoAEC>> [Accessed 25 Mar. 2019].
- theKRUGMEISTER. 2019. Comment on: Collier, J. *Don't You Know - Jacob Collier (Live @ Village Underground, London)*. [Online video]. Available at <<https://www.youtube.com/watch?v=c5FqpddnJmc&lc=Ugyy4f4YYJa7pgtV70V4AaABAgt>> [Accessed 25 Mar. 2019].
- TheUnorthodoxGears. 2017. Comment on: groundUPmusicNYC. *Snarky Puppy Feat. Jacob Collier & Big Ed Lee - "Don't You Know" (Family Dinner Volume Two)*. [Online video]. Available at <<https://www.youtube.com/watch?v=eqY3FaZmh-Y&lc=UgjAdtPvfXKprXgCoAEC>> [Accessed 25 Mar. 2019].

Tone, C. 2017. Comment on: groundUPmusicNYC. *Snarky Puppy Feat. Jacob Collier & Big Ed Lee - "Don't You Know" (Family Dinner Volume Two)*. [Online video]. Available at <<https://www.youtube.com/watch?v=eqY3FaZmh-Y&lc=UggO-5hX3BaU23gCoAEC>> [Accessed 25 Mar. 2019].

UnicornHorn. 2016. Comment on: Collier, J. *Don't You Know - Jacob Collier (Live @ Village Underground, London)*. [Online video]. Available at <<https://www.youtube.com/watch?v=c5FqpddnJmc&lc=Ugi6mDbVKhQ4uXgCoAEC.8Gm3bfj6U6A8Gm9IL0KAzn>> [Accessed 25 Mar. 2019].

White, W. 2016. Comment on: groundUPmusicNYC. *Snarky Puppy Feat. Jacob Collier & Big Ed Lee - "Don't You Know" (Family Dinner Volume Two)*. [Online video]. Available at <<https://www.youtube.com/watch?v=eqY3FaZmh-Y&lc=UggSBNAimhHZq3gCoAEC>> [Accessed 25 Mar. 2019].

Williams, R. 2019. Comment on: groundUPmusicNYC. *Snarky Puppy Feat. Jacob Collier & Big Ed Lee - "Don't You Know" (Family Dinner Volume Two)*. [Online video]. Available at <<https://www.youtube.com/watch?v=eqY3FaZmh-Y&lc=UgwzMq6CzKgDo88XWvx4AaABAg.8r4Rc9DlruJ8shx1j1rP2g>> [Accessed 25 Mar. 2019].

## Videography

groundUPmusicNYC. 2016. *Snarky Puppy feat. Jacob Collier & Big Ed Lee - "Don't You Know" (Family Dinner Volume Two)*. [Online video]. Available at: <<https://youtu.be/eqY3FaZmh-Y>> [Accessed 25 Mar. 2019]

Jacob Collier 2016. *Don't You Know - Jacob Collier (Live @ Village Underground, London)*. [Online video] Available at: <<https://youtu.be/c5FqpddnJmc>> [Accessed 25 Mar. 2019].