

Virtuosos on the Screen: Playing Virtual Characters Like Instruments in Competitive Super Smash Bros. Melee

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ABSTRACT

Previous research on virtual sociality in games suggests that players use custom avatars to reflect, alter, and perform new identities in digital spaces. However, this study explores an alternative theory of social performance by analyzing a competitive game, Super Smash Bros. Melee, where players face off in timed matches and interact through pre-designed characters. This study shows how Melee players treat virtual characters as performative instruments, similar to the violin or the piano. In forum posts and player-created media, Melee players emphasize the need to train one's hands, eyes, and mind in order to master a character's complexity and express style and skills in live matches. Instrumental embodiment in a competitive game like Melee thus positions players as virtuosos who perform for perceptive audiences. This research points to a range of ways that players may relate to virtual bodies, connected to distinct kinds of social activities.

Author Keywords

Play; Performance; Avatar; eSports; Player-Character Relationship; Embodiment; Instrument

ACM Classification Keywords

K.8.0 PERSONAL COMPUTING; Games

INTRODUCTION

Researchers have largely studied social interaction online through the lens of the avatar, focusing on virtual world activities like conversation, role play, and team play [8, 15, 39, 51, 64, 91, 95]. These researchers have characterized virtual worlds as stages for assuming new online identities, with the customizable avatar serving as a visual indicator of a player's in-world role [12, 14, 26, 42, 52, 80]. Competitive gaming—or eSports—puts players on stage in a quite different sense, broadcasting high-level matches to crowds of avid spectators. Unlike avatars, competitive games like Super Smash Bros. Melee often feature non-customizable characters, each with a pre-set appearance,

backstory, and array of fighting techniques. In an effort to describe the user's relationship with pre-designed characters, some game studies scholars have moved away from the language of the avatar, theorizing virtual characters instead as props, tools, or vehicles for player manipulation of the game world [9, 46, 57]. In contrast to theories of the avatar or the vehicle, I posit that Melee players treat their characters as *performative instruments*, similar to musical instruments like the violin or the piano. This term underscores the expressive potential of a character-instrument as well as the practiced skills necessary to reach that potential. By considering virtual characters as expressive, demanding instruments, it becomes possible to develop an alternative theory of social performance in virtual space, centered not on the management of virtual appearance, but on the virtuoso display of skills and style in the face of challenging activity.

Through analysis of Melee tournament broadcasts, online discussions, and edited gameplay videos, I examine the ways in which players discuss, share, and create performances using character-instruments. Melee is a fighting game in which the goal is to knock the other on-screen character out of the play area (called the *stage*) and into the abyss below. Before a match starts, each player selects a fighter from a roster of 25 pre-designed characters, including iconic Nintendo figures like Mario, Fox, Pikachu, Link, and Sheik. Melee boasts a long history of public competition, with recorded matches stretching back to its release in 2001. Apart from recorded tournament matches, the other main video genre in the Melee community is the *combo video*, an edited short-form video that synchronizes energetic music tracks with quick cuts of in-game play sequences. This paper covers the live performances of characters during tournaments, as well as the remixed performances of these characters in edited combo videos.

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CHI 2017, May 06–11, 2017, Denver, CO, USA

© 2017 ACM. ISBN 978-1-4503-4655-9/17/05...\$15.00

DOI: <http://dx.doi.org/10.1145/3025453.3026053>

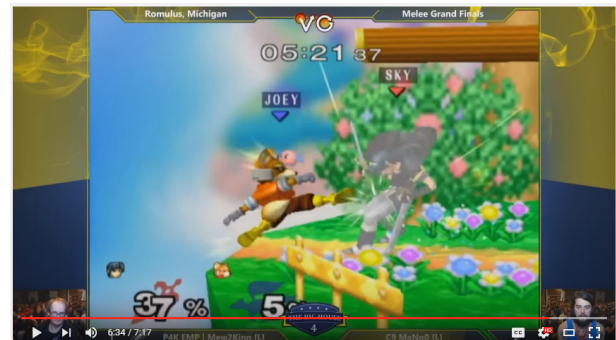


Figure 1. A combo video. “The GOAT - A MaNg0 M0ntage.” 2015. baldcarrots. [Youtu.be/Lwh1IsjG05U](https://youtu.be/Lwh1IsjG05U).

This paper presents the web of musical analogies that Melee players use to describe high-level play. Players repeatedly emphasize the creativity of play sequences, the changing tempos of matches, the importance of practice, and the conversational nature of play [e.g., 5]. Players sometimes even directly compare Melee to art forms like jazz and poetry [36, 48]. Community video makers extend these analogies through combo videos, showcasing players' skilled performances by overlaying them with musical beats. By comparing the ideal—even beautiful—play of combo videos with the clunky play that many describe when they are playing poorly, I examine how players talk about what it is like to perform (or underperform) in competitive games. I also show how existing studies of in-game performance rely on a theatrical model—inspired by Erving Goffman's seminal work, *The Presentation of Self*—but I found that a musical model better fits competitive Melee players' experiences and discussions.

This paper extends existing studies of musician-instrument relationships [28, 32, 58] to the agonistic context of competitive Melee, showing how players train with their favored instruments and develop signature styles of play. Skilled performance has become increasingly important in gaming with the rise of eSports [81]. In response to the growing status of Melee as an eSport, top players in the scene have experienced incredible pressure to perform in order to gain sponsorships, fans, and tournament placings. Like musical performance, high-level Melee is considered both technically impressive and supremely creative. Virtuoso performance in eSports involves the display of personal mastery *with* an instrument, as well as the struggle for interpersonal mastery *between* character-instruments. This struggle may be posited as an important element of the drama and interest of eSports, for both players and spectators. This paper complements existing studies of the player-avatar relationship by outlining key features of the player-character relationship in Melee, showing how character design yields social-interactive possibilities between Melee players and audiences. Drawing on my findings, I also include a series of character design recommendations that may inform the design of eSports games other than Melee.

BACKGROUND

Melee was released on the Nintendo GameCube in 2001, and was the best-selling game on the system, reaching total sales of 7.09 million by 2008 [59]. Each player in Melee directs a single on-screen character with a handheld GameCube Controller, which includes a primary analog stick for movement, five front-facing buttons, a four-way “d-pad,” a secondary analog “c-stick,” and three top-facing shoulder buttons. During a typical Melee match, competitive players utilize all of these buttons and sticks in rapid succession, spiking to over 400 unique Actions Per Minute [10]. Competitive Melee does not reward “mashing,” which simply involves jamming all buttons as quickly as possible, but rather involves a combination of

rapid and precise inputs, prizing physical finesse as much as mental decision-making.

The competitive Melee community is relatively small, but growing. While Melee viewer counts peaked at 205,000 in 2015 during the grand finals of Evo 2015 [84], most national tournaments tend to receive a maximum of 50,000 to 100,000 concurrent live-streaming viewers. Competitive Melee is usually played in a one-versus-one format, with the two players sitting side-by-side, looking at the same television screen. As players input moves on their controllers, they attempt to position their characters in order to land decisive blows without getting hit themselves. Successful attacks send opponents careening across the screen, eventually gaining enough strength to knock them out of play entirely. Many attacks also string together into *combos*, where an attacker follows the movement of the defender and lands successive blows. Combos are quite difficult to perform, requiring split-second timing and the ability to read where an opponent will fly after they get hit in order to intercept them with another attack. Due to their difficulty, effectiveness, and flashiness, combos produce a great deal of excitement for players and spectators. Combo videos present a succession of stellar combos from different matches, often performed by a single player in order to showcase that player's style and skill.

Melee is unique due to its exceptional age as a competitive electronic game, lending it a 15-year history of player development, discovery, performance, and organizational change. Players captured the earliest combo videos by pointing handheld recorders at their television screens. Nowadays, they use *capture cards* which they hook up to their machines in order to pull visual data directly from the game itself. For most of its history, Melee has lacked any online functionality. Melee's eSports scene thus revolves around organized tournament events in physical venues, where players gather from across the region, nation, or even the globe, depending on the scale and reputation of the particular event. Nevertheless, competitive players frequently share gameplay videos online, discuss Melee in forums, and spectate live tournament streams. The competitive Melee scene thus extends into digital mediums where high-level play is discussed, analyzed, and enjoyed.

METHODS

This study utilized purposive searching to collect a sample of combo videos and related discussions, ranging from Melee's release in 2001 to 2016. Searches were conducted using search engines on three major sites that Melee community members frequent: Reddit.com, YouTube.com, and Smashboards.com. Search terms included “Melee combo video,” “Melee montage,” “Melee combo,” “Melee tribute,” “Melee tournament,” “Melee tutorial,” “Melee advice,” “Melee top player,” “high-level Melee,” “Melee skill,” and “Melee character.” Searches were also date-restricted to pull videos from particular years, ensuring that the sample represents Melee's full recorded history. The

front page of Reddit.com/r/smashbros was also monitored for a period of 6 months, adding discussions and videos to the sample if they referenced Melee combos, combo videos, characters, tournaments, high-level play, training advice, or the experience of playing Melee. In order to understand how commentators discuss characters, all major tournament broadcasts were observed through the eSports streaming website, Twitch.tv, for a period of 6 months. For this study, a “major tournament” was defined as an event with two or more top-5 players in attendance, using the community’s standard player-ranking system [45]. To understand how high-level players narrate their experiences with characters, I also collected samples of interviews, character guides, and forum discussions featuring top players. “Top players” were defined as ranking in the top 100 players worldwide using the community’s standard player-ranking system.

To turn gathered data into findings, this study used *Grounded Theory* [76]. Grounded Theory applies coding schema to a body of qualitative data, and then collects codes into concepts and categories. Initial codes were applied by using key terms from the data, and then these codes were iteratively refined. The following codes were applied: “advanced technique,” “button input,” “control,” “fandom,” “hype,” “practice,” “physical challenge,” “mental challenge,” “relative strength,” “style,” “tempo,” “theorycraft.” These codes were the building blocks of my analysis, allowing data to be sorted into my four Findings. Noting the prevalence of musical metaphors across all data, I was able to subsume the categories under a grounded theory of musical performance.

This paper applies *semiotic visual analysis* to interpret the social meanings embedded in combo videos by searching for patterned themes and stylistic choices. According to Giorgia Aiello, the main aim of semiotic analysis is “to look systematically at how textual strategies are deployed to convey certain meanings” [2]. This form of analysis focuses on the *social resources* present in visual media that permit viewers to interpret images. These resources could be rhetorical techniques like the use of perspective or framing, but the term also covers recurrent motifs and symbols that are important to a community [41]. Combo videos are embedded with a variety of social resources that make them resonate with competitive Melee players. Such resources include music choice, editing, game elements, repeated tropes, Melee-specific references, and more. By analyzing these resources, I unpack combo videos as a social medium that attempts both to capture the experience of playing a character and to legitimate the status of particular players, events, and the Melee community as a whole.

This paper also applies *discourse analysis* to interpret player conversations about combo videos, high-level play, and Melee’s cast of virtual characters. The form of discourse presented in this article is what James Gee describes as “language-in-use,” pointing to the way in which language emerges from particular practices and

contexts [34]. By observing discourse that is oriented around a particular activity, it is possible to analyze how people involved in that activity understand it, attempt to change it, and position themselves with respect to others. In this case, I examine discourse produced by Melee community members in order to recognize how Melee players treat virtual characters and competitive performance. Discourse analysis is also useful for following how new players are instructed in learning to play. On forums, experienced players often give newer players advice on how to perform with virtual characters, providing critical insights into how community members understand, practice, and play with their characters in Melee.

FINDINGS

In the following section, I present findings on how Melee players discuss virtual characters and the experience of playing Melee. Specifically, I outline key factors that distinguish character-instruments from avatars, showing how Melee players treat characters not as reflections of themselves, but as instrumental extensions of their creative and effective capacities on-screen. I also show how combo videos represent performative ideals for the Melee community, demonstrating masterful alignment between player and character, as well as mastery over one’s opponent.

Qualities of Character-Instruments

I found that Melee players often deploy performative analogies in order to convey the experience of playing a character. Melee players treat characters like fine instruments, praising the manual proficiency and mental prowess of those able to unlock characters’ creative potential in live performances. Players sometimes describe good Melee as “art” [96], “jazz” [88], “poetry” [48], or “a conversation” [5], but these metaphors get mixed with sports terminology due to the competitive, goal-oriented nature of Melee. One player sums it up like this: “Melee is two basketball players with saxophones trying to dunk on each other while playing sick jazz solos” [31]. The goal of winning a match is sometimes placed at odds with the goal of giving a beautiful performance, creating a dynamic tension that players navigate between “playing to win” and “playing with heart” [75]. Truly great players are praised for merging the two, with others noting that they have



Figure 4. Still of gif showing the character Link’s frame data on an attack. Photo Credit: standardtoaster. 2009. “Link Hitboxes and Frame Data.” Smashboards.com.

created “their own unique style” that is nevertheless highly effective [88]. This mix of skillful handling, expressiveness, and goal-orientation makes virtual characters a unique kind of instrument, involving the following four qualities:

Rhythm

Melee community members emphasize that playing characters well requires precise timing, and that new players need to learn these timings in order to succeed. Characters are rhythmic in two major senses.

First, characters have certain timings embedded in them as a result of the game’s code. In the more technical discussions of Melee, players share knowledge and gifts of characters’ *frame data*, a term that refers to the precise number of frames (each frame is 1/60th of a second) a particular in-game action takes to complete. Many advanced techniques in Melee require stringing together inputs with very narrow timing, often allowing only a 1 to 6 frame window for proper execution. For instance, one player outlines the inputs needed to perform an advanced technique called a *multishine* with a character called Fox:

1st frame [after pressing B+down] the attack comes out

2nd and 3rd frames – very slight lag, no attack or reflection, the jump button can be pressed during these frames, but it won’t take effect until frame 4

...

frame 9 – exactly 6 frames into your jump press B+down, this is the most difficult part, you’ll have to practice finding the timing to press B exactly 1/12 of a second (5 frames) after pressing Y/X

...

repeat frames 4-13 as much as you like/can [75]

This technique is not an obscure, unusable trick for Fox players. Rather, top level Fox players execute multishines and other similarly precise skills quite frequently in competitive matches, displaying their bodily attunement to the fine rhythms of in-game action. Extended techniques like *wobbling* have even been specified in terms of Beats per Minute. One player provides an explanation of wobbling: “The rhythmic tapping required to keep an opponent trapped in a wobble is about 200 BPM...if you tap A with the beat you can wobble” [60]. Because different characters have different frame data, each character has a unique rhythmic structure encoded into it. Melee players recognize these rhythms when discussing characters. Fox is a “fast” character that is considered unsuited for newer players who lack a strong sense of the game’s precise rhythms. Other characters like Ganon are markedly “slower,” meaning that his actions tend to take more frames than Fox’s equivalent actions. Frame data thus constitutes a comparative dimension across virtual characters, providing each character its own feel as players experience and respond to differently encoded rhythms [53].

The second way in which characters are rhythmic has less to do with the hard limits of game code, and more to do

with how a player chooses to conduct the pace of a match. Like any instrument, characters can be played fast or slow, smoothly or erratically. In discussions of high-level Melee, members sometimes link pacing to a player’s mood or energy level, sometimes to skill, and sometimes to strategy. Players can “run over” their opponent with fast play, or they can “slow down” by putting up a defensive “wall” [56]. Top players develop a reputation for playing at a certain pace. For instance, commentators at the Dreamhack Austin tournament noted that top player Hungrybox “likes to establish a slow, deliberate tempo” in order to frustrate his opponents [25]. Players can also decide to “turn it up,” a phrase commentators use to describe switching from slow to fast play in order to catch an opponent off guard [73]. Character guides typically advise players to change their rhythms strategically:

Mixing up your timing, however is often beneficial in order to create a different set of expectations for your opponent [54]

These tempo shifts take advantage of the rhythmic quality of characters, lulling opponents into a false sense of security with a stable rhythm, only to mix it up by changing the timing.

As players tap out new rhythms on their controllers, their characters move to a hidden beat. Good combo videos make these hidden beats explicit, pairing in-game actions with musical tracks that heighten the sense of a player’s rhythmic performance. When evaluating combo videos, community members frequently critique the extent to which the video’s musical beat fits the beats of selected combos:

This was actually a legit really good combo video, I was impressed with how well it went along with the song [49]

This was a great combo video. I appreciated how it lined up with the song [85]

I didn’t really feel the bits where trying to sync the music to the combos was that, smooth? It felt kind of forced, so I felt it was kind of unnecessary or weird in some way. Especially where you just cut 1 big string of a combo just to match the music’s beat. [67]

The latter viewer critiques the maker’s choice to distort combos by cutting them into segments, rather than presenting the combo as a continuous whole. The viewer points out that the maker allowed the music’s beat to trump the combo’s internal beat, forcing the maker to cut up the combo in order to fit the music. Well-received combo videos tend to directly represent the pace at which a player is performing with a character, selecting music and clips that sync up smoothly. Because players set their own unique pace in game, video makers try to choose songs that match the pace at which a player performs. Pacing affords different ways to play the same virtual character, enabling the character to be an instrument attuned to the player’s mood, skills, strategies, and desires.

Mechanical Potential

Virtual characters are responsive to a player's inputs. When a player presses a button or moves the control stick, his/her character acts in a predictable manner, according to the game's code. Melee players refer to this predictable player-character relationship as a character's *mechanics*. Skilled players have deep knowledge of mechanics, unlocking a character's mechanical potential to act in the game through practiced hand movements.

In order to perform well, players must work to align their bodily habits with their character's mechanics. Guides for new Melee players typically include sections covering mechanics, writing up exactly what actions the character performs when the player uses different combinations of manual inputs. Experienced players on forums advise newer players to practice until they understand the mechanics that allow them to move around, put out attacks, and block their opponent's attacks:

You have to get more hours in. Top players have spent countless hours just getting down movement. [61]

Took me about 4 or 5 months to get all the basic fox tech mostly on lock. It's not hard, you just need to be willing to put in the hours. Think of it like playing an instrument.

You need to put in the time to be able to play it. [13]

The latter forum goer links Melee characters specifically to musical instruments, arguing for the importance of sustained practice in order to play well. Similar to how each musical instrument has physical qualities that a novice musician must learn to deal with, each virtual character has a unique set of coded mechanics to master. The goal is for the new player to incorporate a character's mechanics to the extent that in-game action becomes natural. New players must adjust to mechanics through practice, gradually learning how to align their physical bodies with characters' mechanical bodies.

This process of learning is potentially endless; even top players continue to practice, pushing the limits of their characters' mechanical potential. Beyond training with established strategies and mechanical skills, players also talk about experimenting with unorthodox input combinations and tactics. The Melee community's term for this activity is called *labbing*. Players who attempt to figure

out new things about characters are "hitting the lab," experimenting with different input combinations, timings, and frame data [44]. Sometimes, this practice even involves delving into Melee's source code [1]. The aim of labbing is to discover new mechanics, advanced techniques, and strategies. Due to continuous player efforts through Melee's 15-year history, community members sense that their knowledge of characters has advanced significantly, and that their ability to control characters has markedly improved, despite the game's actual code remaining unchanged.

Early Melee combo videos showcased the mechanical potential of characters, revealing an unanticipated depth to the game. These videos showed characters performing novel actions that "promised to blow our minds and change the way we thought about Melee forever" [82]. In a discussion on favorite combo videos, one smasher relates the importance of a 2005 video made by the legendary player, Bombsoldier:

His combo video with that bombs over baghdad song was basically every single smashers intro to competitive melee. He was doing 0-death combos while everyone else was still bumbling around [66]

An article on Bombsoldier's legacy makes the similar claim that his videos changed the way in which Melee was played, showing a new technical level that players could achieve [82]. Another player gives his opinion:

In a weird way, this article [on Bombsoldier] reminds me a lot of Robert Johnson's impact on blues music. A guy comes out of nowhere, creates something nobody has ever seen before, and then disappears before attaining the success that, in hindsight, should have been his for the taking. [40]

Like great musicians, great players are remembered for making an impact on the scene, showing new ways to play with old mechanics. Combo videos were an early medium for capturing the creativity of Melee's pioneers and sharing knowledge about a character's mechanical potential, especially in an era before streaming video or YouTube. Unlike forum threads, which were limited to pictures and text, combo videos showed mechanics in action, proving not only that advanced techniques were possible, but that they could be performed in a real match. The first recognized combo video in Melee, "The Jarrod Experience"—released in 2003—opens with a clip of Fox performing an extended combo on another character called a *wall shine drill*. This kind of combo is commonplace today, but in 2003 it was unheard of, meriting a full 30 second demonstration of the technique in action [83]. These demonstrations were important for showing the mechanical depth of the game, making the case that Melee characters could be instruments for advanced, technical play. In support of this claim, another early collective of combo video makers opens their trailer by referring to themselves

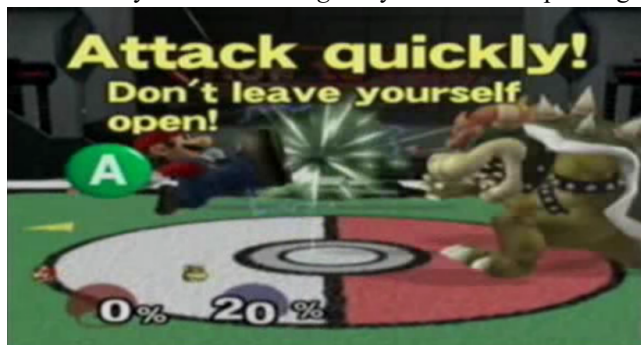


Figure 5. Still from in-game tutorial video: "How to Play." Super Smash Bros. Melee. 2001. Nintendo.

as “A crew dedicated / to high level gameplay / and to proving once & for all / that this is no party game” [84]. Melee’s status as a “high level” competitive game, rather than a party game, relies on the ability of skilled players to tap into characters’ mechanical potential, distinguishing themselves from “casuals” by performing advanced combos. While party games are considered relatively static over time, competitive Melee is progressive. Like art, new styles and techniques continually replace old ones as players figure out different ways to harness characters’ mechanical potential. Exploring mechanical potential is a collective project for Melee players, enabling characters to serve as instruments for the demonstration of novel techniques and performative mastery.

Expressive Potential

Melee players do not treat characters as simple tools for winning in the most efficient way possible. Rather, they use characters’ mechanics to express their own style and creativity during competitive matches. Characters are expressive instruments in two main ways:

First, Melee characters permit players to express styles of play, resulting from particular patterns of in-game action. When community members discuss high-level tournament matches, they are quick to point out how each player displays style. Sometimes, members assert that characters themselves have an inherent style that players tap into:

I just feel that Westballz IS falco, his entire style fits the character like a glove. [50]

Hungrybox became known as the best puff player because he played patiently (how puff needs to be played). This obviously upset a lot of people...Mang0 for one was very vocal about how much he disliked hbox’s playstyle [94]

S2J is my favorite [Capt.] Falcon hands down...Anything with style, combos, etc. get me hooked. [27]

In each of these comments, forum goers link top players—Westballz, Hungrybox, and S2J—directly to virtual characters: Falco, Jigglypuff, and Captain Falcon. These players are renowned in the Melee community for

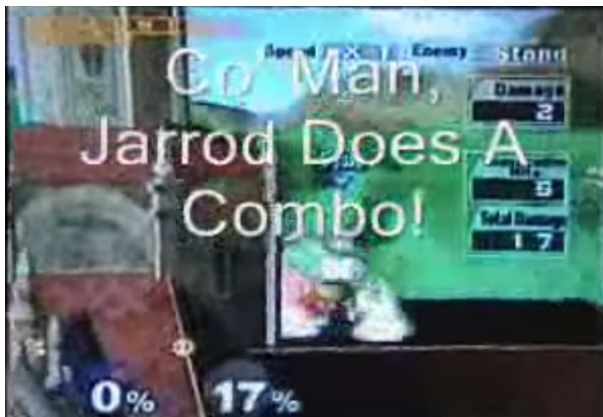


Figure 6. Still from “The Jarrod Experience.” 2003. The Punch Crew. [Youtu.be/H5ydapVh2VQ](https://youtu.be/H5ydapVh2VQ).

pioneering a style that harmonizes with their character, finding resonance between their own persona and their characters’ mechanics. For example, Westballz has a reputation as an aggressive, flashy, in-your-face player, a style considered to be aligned with his character, Falco. Top players extend characters’ expressive potential, revealing that each character is oriented towards a certain style as a result of its mechanics. In this way, mechanics are not only functional, but also expressive, analogous to the timbre of a musical instrument [30]. When player inputs hang together as a playstyle, each character gains a distinctive tone that can be felt and admired by others. On the other hand, Melee players recognize that characters can express a range of styles:

If you look at Leffen’s Fox and compare it to Chillin’s Fox, they are vastly different. Not in skill, but in STYLE; this is one of the huge reasons why Melee players love Melee. [37]

Although Leffen and Chillin are playing the same instrument, Fox, they each handle him differently, showing that Fox is a character with deep expressive potential. A character’s expressive potential is not treated as a function of in-game appearance. Melee players rarely reference how Fox or any other character looks. Instead, expression is understood as deriving from the range of ways to play, in the same way that the piano’s expressive potential results from infinite variations on striking its keys. Fox has high expressive potential because he provides a wide range of effective options for players, allowing for multiple styles to emerge. When Melee players wield instruments with style, they move characters beyond the realm of the purely functional or the purely ornamental, and towards the domain of creative expression.

Second, Melee characters allow players to build shared excitement, or *hype*, by creating impressive moments during matches. In the Melee scene, making hype plays is an ideal goal for top players, helping them gain confidence and acclaim. Commentators of eSports events are quick to recognize hype moments during tournament broadcasts, adopting a particularly feverish pitch and exclaiming disbelief at incredible combos and other “sick” plays [e.g., 78]. Community members share their hype in post-match discussion threads:

THIS GAME WAS LIKE EATING 700 BIG MACS IN A ROW / MULTIPLE HEART ATTACKS BUT I GOT THROUGH

GET HYPE!

AHHHHHHHHHHHHHHHHHHHH

I NEED TO SLEEP BUT I CAN'T OMG [22]

Stunning performances with characters produce hype, leaving viewers awe-struck. In forum threads, eSports broadcasts, and combo videos, hype game moments are picked up by the community and spread, building a shared

sense of excitement and love for the game. Tournament organizers rely on hype to boost attendance and viewership, making special videos that showcase player rivalries and past tournament highlights [e.g., 72, 92]. Top players use hype to win over the crowd, enabling them to receive recognition that can translate into sponsorships and fans. For instance, star player Mang0 is well-known for adding fans to the “Mang0 nation” by making hype plays: “He earns his money stylin” [680]. Not to be confused with playstyle, *styling* refers to showing off for the benefit of an audience through novel, risky, or impressive play. While hype is now popularly broadcast through tournament streams, combo videos set the precedent for styling years earlier. As one veteran player puts it: “The combo video has long been a warning shot to the world, letting people know that you exist and are capable of dropping jaws” [74]. The combo is the quintessential hype moment, where the player and character are completely aligned in action that is both effective and expressive. Hype players are savvy performers who use their characters as instruments that demand attention and appreciation.

Reaching characters’ expressive potential is thus a motivating force for competitive Melee players, empowering them to cultivate their own style, capture an audience, and turn them into fans. As expressive instruments, characters allow players to become performers, playing for not only for themselves, but for the benefit of perceptive audiences.

Leverage

Melee players frequently discuss the influence that characters have over other in-game characters, objects, and environments. Characters with the capacity to act on others have *leverage*. In short, leverage is defined as mechanics applied to a particular game situation. Characters with leverage are effective instruments, able to change the present state of a game.

Melee matches are a struggle to gain control over the other player, taking advantage of a character’s leverage in order to win. Characters’ leverage thus serves as a source of both opportunity and challenge for competitive Melee players, who must apply their own characters’ leverage while mitigating their opponent’s leverage. Importantly, Melee players recognize leverage as both situational and

interactive, delineating situations in which the same character can have more or less leverage. For example, tournament commentators in Melee sometimes relate the strategic importance of “controlling center stage,” or positioning one’s character in the middle of the stage [73]. This position affords a character maximum leverage, pushing the opponent to the “corner” or edge of the stage, where the cornered character has fewer options to respond or retreat. In this case, leverage is treated as spatial, a function of Melee characters’ potential to threaten the space around them and block an opponent’s movement.

Leverage can also be temporal, a result of a sequence of actions that gives one player a relative advantage. For instance, Melee characters block incoming attacks with *shields*, defensive bubbles that form around characters and get smaller as they are attacked until they break. When players use their characters’ attacks to catch opponents shielding, they are applying *pressure*. Tournament commentators narrate the effectiveness of this strategy to viewers, explaining how pressure mounts as the defending player’s shield shrinks, reducing the defender’s options and forcing them to gamble on evasive maneuvers. Good shield pressure is thus a temporal sequence where mechanics are skillfully applied, allowing the aggressor to build leverage and prey on the defender’s weaker position. In either case, skillful players manage the challenges of competitive play through leverage, attempting to maintain control of a match and win in a consistent manner. Forum goers recognize the importance of control in Melee:

I love how once u have the advantage in neutral you really just control the pace of the game until your opponent loses their stock. [65]

When I watch mid-high level play, the players always feel like they’re in ‘control’ with their characters. When I play I know what I should do, but I’ll mess up and completely miss my attack. [6]

As noted in earlier sections, control is partly a function of skill, resulting from: 1. prior training to align one’s habits with a character’s rhythms; 2. prior experimentation to build deep knowledge of a character’s mechanics. However, the current discussion of leverage shows how the struggle for control also occurs in relation to an opposing character. Melee players who maintain absolute control are described as “bodying” their opponents, and many combo videos showcase combo victims “getting bodied” [eg. 43, 47]. Combo videos reflect the important status of control in competitive Melee, marking characters as effective instruments with leverage over others.

While a large portion of controlling a character derives from physical skills like timing and precision, Melee players also spend a good deal of time discussing Melee’s “mental game” [93] and theory crafting [62], analyzing specific strategies, character matchups, and in-game scenarios. The Melee community treats rapid, complex



Figure 7. Top player Axe acknowledges the crowd’s applause after a close set with Armada. Evo 2014. Photo Credit: David Zhou. Flickr.com/photos/nodnod/.

thought as an integral part of playing the game at a high level, pointing to the depth of in-game decision-making:

[At its peak, the] game turns into something incredibly cerebral. The best way to describe the absolute top level of Melee is that it is a super fast-paced chess match.

Basically, the top players are the ones that understand how to play the game, the matchups, and finally the player. [3]

My mind was blown. Not only the depth of the thought process, but how quickly the players have to analyze and react to every single situation is just mind-boggling. It's because of this reason and the sheer depth of knowledge they need to have about every attack, what it does, what it beats, etc, that I know that I will *never* be good enough to be this competitive (and really, that's okay). [29]

High-level Melee is considered to involve a constant stream of important decisions and complex thought in order to remain in control of a match. In other words, leverage is not just due to a player's ability to physically execute and exploit mechanics, but to his/her mental capacity to enroll mechanics into effective strategies, mind games, and creative ideas. Players refer to this as the conversational aspect of Melee: "You should think of matches like a conversation with your opponent. If all you think about is beating them then you've only got one side of the conversation" [5]. Here, one player instructs another directly on cultivating mindfulness during a match, listening to the opponent's play as an expression of thoughts, mood, and habits, so that one can respond in kind. Commentators of eSports matches often refer to this activity as "reading" an opponent [e.g., 25], teaching spectators to interpret Melee as a mental battle to "get a read" and figure out the opponent's thought patterns. Conversely, players that stop thinking are interpreted as "going on autopilot" [78], allowing their habits to dominate their play rather than responding to the other's play in a mindful fashion. These examples highlight the deeply interpersonal nature of leverage in competitive games, operating on multiple levels at once: bodily, mechanical, spatial, temporal, and mental. When players attempt to control a Melee match, they do so in direct response to their opponents' actions, demonstrating that competitive players treat characters as responsive instruments, attuned to the emergent play of others.

When players discuss leverage, the musical instrument analogy often gives way to other metaphors like sports, chess, conversation, mind games, and puzzles. Leverage, therefore, makes virtual characters a unique kind of performative instrument due to players' ability to directly respond to and impact other characters. Interactive dynamics like harmony and dissonance are of course present in musical instruments, but virtual characters' interactions often involve more direct forms of control, like

combos and cornering. While interactions between traditional instruments are limited by the properties of sound and matter, virtual character-instruments' interactive possibilities are limited by mechanics and code. However, what links traditional instruments and character-instruments is the fact that neither can be reduced to these limiting factors; rather, play emerges from how performers are able to handle these instruments in a live situation, creatively working within material and virtual constraints in order to produce beautiful, skillful, readable performances.

DISCUSSION

This study's findings point towards a new understanding of virtual characters in competitive games, based on the model of the performative instrument. The four characteristics delineated here—rhythm, mechanical potential, expressive potential, and leverage—do not exhaust the possibilities of character-instruments, but instead suggest their depth and specific performative qualities in games like Melee. Melee players' experiences with characters show how current models of characters as roles, props, tools [46], vehicles [57], or points of control [9] may not be easily divisible in practice. As instruments, Melee characters combine the expressive potential of props, the leverage of tools, and the mechanical precision of vehicles. This is partly a function of the game's code, but coded qualities would be meaningless without Melee's long history of development by competitive players. Therefore, the four identified qualities of character-instruments should not be thought of as simple technical facts, but rather as potentials that unfold and acquire social meaning through practices like training, discussion, video-making, and competitive performance.

The instrumental model stands in contrast to the standard theatrical model applied to understand virtual bodies like avatars. The theatrical model was established by Erving Goffman's pivotal work *The Presentation of Self*, in which Goffman argues that people act out social roles in public. He observed that people "perform" for others by adopting certain "manners" and "costumes," constructing a "front stage" identity for social interaction [35]. Although Goffman was not writing about virtual life, many avatar researchers explicitly or implicitly reference Goffman in their work, treating avatars as "front stage" identities whose visual properties shape social interaction [8, 12, 17, 39, 42, 64, 90, 91]. Research on avatars has focused on the social impact of visual cues like avatar skin color, gender, shape, age, and dress [14, 26, 38, 51, 52, 80, 87, 95]. Researchers' focus on avatars' visual cues parallels Goffman's analysis of how individuals manage their own appearance in social life. For instance, Katherine Isbister relies on Goffman when she writes that avatars encourage social "role-play," where players take advantage of the flexibility of avatar appearance to construct new online identities [38]. In contrast, this study found that the appearance of characters matters much less to Melee players, who instead focus on characters' mechanics, effective style, hype, and difficulty to control. Because Melee players de-emphasize appearance

in favor of other technical capacities, the ways in which they interact do not seem to fit easily with Goffman's theatrical model.

Instead, this paper suggests an alternate theory of performance might be more appropriate for understanding virtual characters. This paper moves away from Goffman's theatrical model—which relies on interaction between “front-stage” identities—and towards a model based on musical performance, which involves interaction between a skilled performer, an instrument, and an audience. Like musicians and other live artists, competitive Melee players are virtuosos who perform for crowds, practice manual techniques, express style, and report feelings of merging with their instruments. The instrumental model emphasizes the creativity and skill required to play a character-instrument, as well as the thought required to respond to other character-instruments. Melee players treat their characters as refined, difficult objects, requiring sustained practice to learn and incorporate. The stakes of this kind of performance are quite high for competitive Melee players, who need to continue to perform well in order to maintain sponsorships, community respect, fans, and tournament winnings. Characters act as smooth *extensions* of self when playing well [16], but these same characters become clunky hindrances when playing poorly. Instrumental embodiment, then, is a skillful practice that involves incorporating a character's rhythms and mechanics, developing the potential for masterful, stylish performance. In contrast, avatar embodiment relies on the player's imaginative capacity to reflect and build on the visual cues provided by avatar bodies [11, 24, 71]. Melee characters still present visual cues, but these are diminished by competitive players in favor of strategic properties like mechanics.

Further studies are needed to determine the extent to which instrumental embodiment is practiced in other games besides Melee, especially in competitive eSports. From this study's findings, it is predicted that similar dynamics may exist in games where players compete with a roster of pre-designed characters, such as League of Legends, Overwatch, and Street Fighter V. Meanwhile, this study suggests an initial, rough division between avatars and characters: avatars are virtual bodies that are *individually* crafted and controlled, representing a relationship between a single unique avatar and a single player. By contrast, characters are virtual bodies that are pre-designed and can be selected by any player, representing a relationship between a *shared* character and an individual player. While avatars point to the uniqueness of the user's physical appearance and the ability to play with that appearance online, characters point to the shared nature of the object being handled by the player, leading to comparisons between different players' skills and styles in handling these characters. According to this schema, virtual worlds like *Second Life* are prime places for avatar embodiment, due to the high ability to customize one's virtual appearance, as well as the cultural emphasis on looks,

fashion and identity play in this world. On the other hand, competitive Melee represents the opposite end of the spectrum, with pre-designed characters and a collective emphasis on training, mastery, and signature play styles. This division is overly simplistic, but it helps demonstrate that character-instruments allow for distinctively different kinds of social practice than avatar-selves. Of course, some virtual bodies represent a mix of avatar and character qualities. For instance, in *World of Warcraft*, players operate individual avatar bodies with some ability to choose in-game appearance and dress, but avatars also belong to shared classes like Rogue and Mage, meaning that they share a set of pre-designed fighting abilities. Therefore, virtual bodies in *World of Warcraft* are hybrid avatar-characters, with different kinds of social interaction becoming salient in different play contexts. By making space for characters alongside avatars, this paper calls for further study of the shared design elements of virtual bodies, complementing previous studies of their customizable elements.

Characters are performative foci around which social narratives are built in competitive Melee. These social narratives are quite different from any intended narrative inscribed within the game itself. In fact, when players prioritize a character's intended narrative over the social narrative, the character may cease being a character-instrument altogether. Game designer Toby Gard explores the idea of characters with strong narrative design, identifying them as *actors*:

The Actor is a character distinct from the player, with its own personality, characteristics, and, to some extent, mind. [33]

While Gard emphasizes the design strategies that help convey a strong sense of personality, ultimately players choose the extent to which they attend to these narrative elements [63]. Players treat characters as actors when they prioritize the game's plot and characterizations, playing the game as a form of interactive fiction [55]. On the other hand, players treat characters as instruments when they prioritize the social narratives afforded by playing with others, playing the game as a challenge to perform acquired skills and style. Actors and instruments thus represent two ways of relating to characters, the former focusing on the character's intended backstory and personality, and the latter highlighting the character's mechanical potential to impact game outcomes. The instrumental side is much more relevant to competitive play, as character mechanics allow for improvised social narratives that derive from live gameplay situations.

This study's findings also demonstrate the importance of mastery in competitive gaming, identifying both personal mastery and interpersonal mastery as integral to player-character relationships in Melee. To master a character's rhythms and mechanics, players devote long hours to practice, much like musicians and other live performers.

The end result is a kind of practical merging with a character-instrument, so that playing the character becomes fluid, creative, and natural, much like playing an instrument [21]. Performance studies scholars have variously written about the performer-instrument relationship as a natural extension of the performer's body [58], as a form of intimacy [32], and as a cyborg hybrid of person and technology [7, 28, 69, 79]. These seem to directly align with this study's findings on the close, cultivated relationship between skilled Melee players and their characters' rhythms and mechanics. Other scholars have rigorously observed the bodily gestures that musicians execute in order to produce sound, as well as the incidental gestures that are a part of live performances [18, 20, 23]. Gesture analysis may be a fruitful avenue for future eSports research, especially to measure differences in performance between live tournament settings and practice at home. However, Melee characters differ from artistic instruments due to the game's agonistic focus on achieving control at the expense of the other player. This struggle for interpersonal mastery colors the relationship between players and character-instruments, emphasizing modes of mindfulness where one actively strategizes by reading the opponent. This paper encourages further explorations of how mental and physical mastery intertwine in play, especially in eSports.

This study joins other researchers of virtual embodiment, who argue that games are mediums that create strong emotional responses [39], establish rhythms of work and play [4], and produce different sensations for differently skilled players [77]. These researchers emphasize the multiple ways in which games affect our bodies, from physiology to emotion to behavioral practice [19]. For example, Steve Swink establishes the concept of "game feel" to describe the tactile sensation of controlling a virtual character in a simulated space [77]. Good game feel is vital for creating a coherent feedback loop between player and game, engaging players and scaffolding skill-building through play [77]. Swink attributes felt characteristics like responsiveness and polish to a game's design as a whole, but this paper's findings suggest that such attributes may vary by character in games like Melee. In fact, rhythm, mechanical potential, expressive potential, and leverage may be seen as the character-specific analogues to Swink's game feel attributes, allowing each character to feel distinct within a single game. As a result, future studies of *character feel* may complement existing research on game feel. But Melee characters do more than establish an embodied connection between player and game; they also mediate between players and perceptive audiences, who judge players through their handling of these characters. Therefore, understanding Melee characters as instruments suggests a new method for looking at the social aspects of play, attentive to the ways in which community members continually compare their own and others' performance as indicative of relative skill, style, knowledge, and focus.

This suggests that designers may think outside of individual relationships like player-to-game and player-to-player, highlighting the need to account for player-to-audience relations as well. I end the discussion with a series of design recommendations for building performative characters:

1) *Eliminate inconsistent outputs*: In Melee, player inputs on the controller consistently translate into specific, predictable outputs by the character. Consistency is the foundation for the player-instrument relationship, allowing players to become skillful by practicing specific timings and move sequences. The predictability of the character-instrument is endangered by designs that translate the same input into different outputs seemingly at random, such as different animations triggered by identical inputs. In addition, designs that alter the cooldown or timing of abilities risk disrupting the chance for players to learn characters' rhythms.

2) *Minimize scripted sequences*: Scripted sequences are those where characters perform pre-determined actions without any input from the player. Many games include lengthy scripted sequences during play, where pressing a single button leads to the character performing complex action sequences that may span several seconds. Long scripted sequences risk breaking the link between player and character-instrument. Melee does have scripted sequences, but these usually last only a matter of frames. Minimizing scripted sequences encourages instrumental mastery and expression, as players have to constantly execute the correct inputs in order to accomplish meaningful game outcomes.

3) *Define power scenarios*: As character-instruments, Melee characters are defined by their relative leverage in different situations, establishing unique power scenarios for each character. Hype occurs when a player executes masterfully during their character's power scenario, but hype also occurs when a player manages to succeed despite being in a disadvantageous power scenario. High-level strategy in Melee involves understanding and anticipating each character's unique strengths. Designing differential strengths for different characters thus encourages both strategic thinking and exciting on-screen performance.

4) *Offer varied move-sets*: Each Melee character has at least 15 simple, unique moves that may be performed at will. This range of options lends high-level Melee its improvisational, "jazz"-like feel. By favoring some moves over others, players express their own unique style. Furthermore, by correctly identifying the best moves from a variety of options, players display skillful decision-making. Varied move-sets offer a range of expressive possibilities to players, encouraging virtuosos to create signature styles.

CONCLUSION

In this paper, I analyzed how community members understand the relationship between player and virtual character in competitive Super Smash Bros. Melee.

Through analysis of forum posts and player-created media, I found that players treat characters as performative instruments, emphasizing the need to practice, train, and incorporate a character's coded rhythms, mechanics, and potentials in order to master it. Character-instruments allow players to express their skill and signature styles in live performance, positioning high-level Melee players as virtuosos who cultivate fans, sponsorships, and collective hype by showing off for crowds. Performance with character-instruments is markedly different from identity play with avatars. This study thus argues for continued exploration of the range and diversity of digital embodiment, enabled by different kinds of virtual constructs, settings, activities, and social milieus.

ACKNOWLEDGEMENTS

I would like to thank Bonnie Nardi, Allison Clark, and the four anonymous reviewers for their comments on this work. Thanks also to the online Smash community, without whom this research would not have been possible.

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