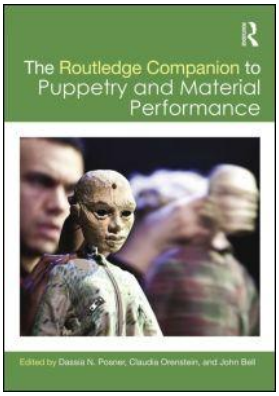

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Unholy Alliances and Harmonious Hybrids
New Fusions in Puppetry and Animation

Colette Searls

Animation and special-effects studios today are making increasing use of motion capture, computer-generated imagery (CGI), and digital puppetry in television, theatre, commercial films, and videogames. As CGI grows ever-more capable and pliant, it is not only changing the way in which actors and puppets appear in various media, it is enabling animated characters to perform like puppets and vice versa. Actors are controlling cartoon characters, while visual-effects teams are seamlessly mingling objects with images, blurring the lines between acting, animation, puppetry, and special effects.

Hybrids are appearing in a range of environments, including live theatre, theme parks, and – most commonly – fantasy films. In the latter, animation and puppetry are sometimes combined to achieve human likeness through motion-capture technology. In this chapter, I will argue that successful hybrids are radically transforming what puppetry and animation can do. In some cases, however, where these fusions are used to achieve naturalistic human likeness, their creators are setting aside what is most advantageous about puppetry and animation, thus diminishing their creative impact.

I will begin by looking at definitions of puppetry and animation and at how digital puppetry has already expanded these classifications and the creative reach of both forms, using examples from live performances. I will then investigate principles of unity and distance, which puppetry and animation share, and demonstrate what happens when artists fail to apply these principles in their use of animation/puppetry hybrids, using both the Spike Jonze-directed film *Where the Wild Things Are* (2009) and several "performance-capture" animated films as examples. I will conclude by analyzing actor Andy Serkis's most well-known digital film roles to demonstrate how animation and puppetry are harmoniously intersecting in creature effects[1] through advanced motion-capture technology.

Definitions

Emerging digital technology has challenged animation and puppetry artists to redraw the boundaries of their crafts. Interestingly, scholars have long struggled to settle upon a clear universal definition of animation. According to Maureen Furniss, author of *Art in Motion: Animation Aesthetics*:

> One of the most famous definitions of animation has come from Norman McLaren, the influential founder of the animation department at the National Film Board of Canada. He once stated:
>
> Animation is not the art of drawings that move but the art of movements that are drawn; What happens between each frame is much more important than what exists on each frame; Animation is therefore the art of manipulating the invisible interstices that lie between the frames.
>
> (Furniss 1998: 5)

McLaren's statement is significant not only for its lasting influence as a widely referenced definition, but for the way he places the performance of movement (rather than the creation of pictures) at the heart of animation.

When I use the term "animated character," I am broadly referring to the common perception of what this means: imagined characters drawn or sculpted by visual artists (via paintbrush, pencil, software tools, clay, or other means) and given the illusion of life through movement. I follow the common American understanding that animation refers to drawn or CGI-rendered images in motion, including those created through claymation and other types of stop-motion puppetry (a long-established hybrid).

Penny Francis, who analyzes historical classifications of puppetry in *Puppetry: A Reader in Theatre Practice*, concludes that a puppet is:

> [A] representation and distillation of a character, the repository of a persona perceived by both creator and spectator within its outward form. It can be any thing, any object, if brought to imagined life through the agency of a human player who inspires and controls it directly. The control may be through corporeal contact (hands-on, hands-in), or via strings, wires, wooden or metal rods. The figure animated electronically or even remotely is still a puppet if the performer is present at the other end of the cable or machinery, controlling the movements … .
>
> (Francis 2012: 13)

Here, Francis points to how the creator and spectator jointly participate in perceiving character in a puppeteered object. John Bell makes a similar suggestion in *American Puppet Modernism*, referring to a "performance triad" in object performance in which "performer and spectator are both focused on the object, not on each other" (Bell 2008: 5). In offering remote animation as a valid form of puppeteering, Francis still holds puppetry to the bounds of human agency and presence. In

light of digital puppetry's emergence, I would add that a puppet can be any inanimate object or *image* manipulated by a performer to create the illusion of a life, so long as it falls within these same parameters. To be a puppeteer, the person controlling the image/object must be present during the performance, even if it is recorded and otherwise retouched before intended audiences perceive it (like Frank Oz puppeteering Miss Piggy before a film camera). Puppeteering is also a type of acting, and I categorize it as physical theatre because its chief communication tool is movement, making it particularly close to mask performance and mime.

The digital age has generated a new breed of character, often called a "digital puppet" or "virtual character," that is confusingly part image, puppet, and human performer. The most common instance of this hybrid arises from reading an actor's movements and expressions through motion-capture technology to create animated images. With motion capture, actors wear sensors on their faces and/or bodies (often on form-fitting suits designed for this purpose) and, as they perform, a computer uses the information to map the movements onto an image of a character. The captured information in this way drives the character's movements. This technique distinguishes motion capture (commonly called "mocap") from traditional animation[2]: with mocap, animators are no longer wholly responsible for creating the illusion of movement; character action is now coming in large measure from an actor's choices.

In today's advanced mocap studios, actors can interact with one another as they would in a live-action film[3] or theatre rehearsal and can even respond to instantaneous commands from a director, who is often watching the resulting animations on a monitor in real time. These are the animated characters featured in films such as *The Polar Express* (2004), *Avatar* (2009), and *The Avengers* (2012), as well as television shows produced by the Jim Henson Company's Digital Puppetry Studio (the most well-known being *Sid the Science Kid*). This particular type of hybrid brings performers into the animation picture by enabling them to choose the movements of the character image using gadgetry and/or their bodies as controllers (hence the term "digital puppet"). Author Stephen Kaplin has pointed to the profound effect this has on the way images can be animated from a puppetry standpoint: "With the motion capture suit, the performer can again achieve a kind of direct contact with the object, performing as though from inside the object" (Kaplin 1999: 35).

The very existence of these performed animations forces two radical ideas within the fields of animation and puppetry. It means that an animated character can perform live and that an image can be a puppet. A number of puppetry scholars have addressed the question of how to categorize these new species and how they might destabilize traditional understandings of what constitutes puppetry. Steve Tillis's article "The Art of Puppetry in the Age of Media Production" draws a clear distinction between what he calls "tangible puppets" and intangible images that are operated *as* puppets "i.e., intangible objects that are tangibly moved." He then suggests that these manipulated images make up a new category called "virtual puppets," a term coined by Stephen Kaplin (Tillis 1999: 192). I have adopted some of this language here. I ultimately conclude, however, that virtual puppets have transcended their intangibility in some of the most advanced uses of motion capture for film.

Digital puppets in real life

Though most of what I discuss in this chapter relates to recorded performances for film, I will first examine how digital puppetry in live settings exploits puppetry's interactive, spontaneous abilities, thereby expanding the powers of animated characters. For illustrative examples, I will look at two cartoon characters that have been transformed into interactive digital puppets for live audiences: Magic Mirror from DreamWorks Animation's *Shrek* (2001) and Crush from Pixar's *Finding Nemo* (2003).

When *Shrek the Musical* (a stage adaptation of the film) was brought from Seattle to Broadway in 2008, digital puppetry proved an artistic problem solver for the Magic Mirror character, a talking mask that floats inside a mirror frame. Joe Strike of *Animation World Network* describes how the *Shrek* team used digital puppetry to make an animated character perform live onstage:

> In the old days the producers might have settled for an actor on the other side of a pretend mirror, or perhaps a pre-produced piece of animation. Today however, the same technology that brings these moments to life onscreen can perform the identical magic onstage – and thanks to modern motion capture technology, go one better by doing it live, every night in real time … The Mirror face the audience sees is identical to the one in the original animated Shrek … .
>
> (Strike 2009)

Puppeteer John Tartaglia (*Sesame Street*, *Avenue Q*) had sensors placed on various parts of his face for each performance in order to manipulate Magic Mirror with his own expressions. He could see his virtual puppet move in real time, and he could react to other characters with the kind of organic spontaneity a recorded animation could never offer.

Going a step further, Disney has built theme park attractions with digital puppets that interact with their audiences. Digital puppets in live environments are actually not that rare – they can often be spotted at trade shows and conference attractions in the form of computer game-style characters. But Disney/Pixar offers something more transcendent in its conversion of animated characters into digital puppets. A mainstay Disney World attraction, "Turtle Talk with Crush" invites visitors into a dark room facing a large screen, lit up with what looks like a scene from the film *Finding Nemo* – a slice of colorfully animated ocean. Crush, the surfer-dude turtle from the movie, swims in to playfully joke around with individual children. The setup is totally cinematic: Crush and the other sea creatures who float by on the screen look exactly like their *Nemo* originals and their environment mirrors the movie. Only now, Crush can see through the screen. With this kind of live digital puppetry (the puppeteer hidden but able to view the audience), the animated character makes eye contact with people, calls them by name, and engages in actual conversations.

These examples from live theatre and interactive attractions demonstrate how alliances between puppetry and animation yield more territory to each field. Because of digital puppetry, animated characters can, like puppets, *be present*. By turning the screen from a projected recording into an interactive puppet stage, cartoon creatures

can act on spontaneous impulse and experience the vulnerability to accident that actors and puppets have always exploited. And puppetry has updated its identity: puppets can now be instantly transformable images. I do not suggest digital puppetry is a useful solution in all forms of animation or an attractive new alternative to tangible puppets. Naturally, traditional animation and puppets that exist outside of a computer will always carry unrivaled charms and particular aesthetic powers. But hybrid creations do give artists substantial new tools and help keep puppetry and animation at the forefront of inventive make-believe.

Unity and distance in puppetry and animation

Animation and puppetry have always shared common links and practices, though the training and skills required for each, as well as their final outcomes and relationships to audiences, are naturally quite different. I am interested in where the two forms overlap and have identified unity and distance as two principles they both rely on to create convincing illusions.

First, artists in both fields must strenuously apply their craft to make fictional characters convincingly unified within themselves and their environments. With animation, bodies must be drawn from one frame to the next in a way that makes them appear to physically react, consistently and reliably, as a living being would. As animator Chris Webster explains in *Animation: The Mechanics of Motion*:

> In order for animation to be believable the action must demonstrate those qualities that we are familiar with in our day-to-day experience. Even the fantastic will become credible if it appears to respect those same laws of nature that we ourselves are subject to.
>
> (Webster 2008: 3)

He then details, like many animation technique authors, how to convey physical laws in renderings of human, animal, or object movement. For example, particular emphasis is placed on how characters cope with gravity (also a key component of puppetry training). Puppeteer/director Eric Bass similarly emphasizes the importance of consistency and unity in his "Notes on Puppetry as Theatrical Art," stating that "each production sets its own rules; I only insist that the production be consistent within its rules, and that the rules be organic to the complete aesthetic of the production" (Bass 1999: 39). Whether a story takes place in a magical wonderland or a dense rain forest, this principle of wholeness is critical to building credible illusion.

The second principle is distance. Interestingly, this rule points to one way in which puppetry and animation work differently from human-character acting. When actors portray other human beings, there is no physical detachment between themselves and the characters they portray: performer and performed are one entity and cannot exist in separate spaces. Conversely, puppeteers and animators are separate and distinct from the characters they bring to life. In *Acting for Animators*, Ed Hooks illustrates the difference this way:

> An actor does not "become" a character. He doesn't stop being himself and become somebody else. He experiences the process of acting as if the emotions of the character are his own and of course they really are. The animator doesn't work like that because there is a physical distance between him and the character he is creating.
>
> (Hooks 2011: 49)

Basil Jones of Handspring Puppet Company makes this curiously aligned point about the difference between actors and puppets:

> The actor is a living person and therefore automatically possesses life … His or her *livingness* is obvious and certainly doesn't need to be "performed" … the primary work of the puppet is the *performance* of life, whilst for the actor this fundamental battle is already won … .
>
> (Jones 2009: 254)

Indeed, both puppets and animations pretend to be alive. They are removed from their creators by this simple fact of nature as well as basic physics. But the gap between performer and performed has actually been obscured in a number of attempts by fantasy film directors to mix human-character acting with animation through motion capture. In these cases, which I will discuss in detail further along, the failure to understand this essential rule of distance has resulted in rather flat, uncompelling characters.

The centrality of these two principles, unity and distance, comes from my investigations into how animation is taught, compared with my research and experience as a puppetry artist. The following case studies of several films show how distance and unity become particularly critical when animation and puppetry are hybridized.

What the Wild Things are

In 2009, filmmaker Spike Jonze (*Being John Malkovich*, *Adaptation*) conceived a script with writer John Eggers based on Maurice Sendak's illustrated book, *Where the Wild Things Are*. To capture the iconic titular beasts in his live-action film, Jonze and his team worked with tangible puppets that would eventually become partially animated with CGI. While this is not an uncommon technique (it is often used in stop-motion animation), the hybrids in this film illustrate particularly well the importance of unity.

Jonze commissioned Jim Henson's Creature Shop to create large suit puppets for the Wild Things,[4] and the resulting figures look remarkably similar to their two-dimensional originals, with their design seeming to capture the beasts in spirit as well. Jonze and Eggers devised a screenplay that would lend these creatures nuanced emotions and an extensive amount of human dialogue. Jonze recognized early that these enormous, heavy puppets would require flexible, articulate faces in order to perform this dialogue, so he planned to employ animatronics (remote-controlled machines) to manipulate the facial expressions. However, the inherent challenges of

working with the large puppet suits in rough outdoor locations, reinforced by advice from director David Fincher (*The Curious Case of Benjamin Button*), convinced Jonze and his team to remove the heavy motors from the costumes and pursue "[their] own hybrid visual effect process" with London's premier special-effects studio, Framestore (Billington 2009). Applying some of the same tools used to make live animals appear to speak on film, the Framestore artists rendered faces with CGI to match the images of each puppet and applied them to the film. The CGI mouths and other facial features were designed to respond to the vocalizations of the voice actors' prerecorded dialogue so that the creatures onscreen would appear to speak naturally (Bennett 2009).

The creatures' faces on film do, indeed, lend a range of expression to these puppets: the effect is remarkably seamless in that the CGI blends in with the puppets' heads quite believably. But the movement itself does not match: the puppets' faces (particularly their mouths) are highly detailed and articulate, while their limbs and torsos appear clumsy and heavy. The irony of this problem – the dual masters Jonze was serving by creating this hybrid – comes through in his motivation: "we were just trying to get real, subtle, complex, nuanced performances out of these giant, wild, furry, huge-headed beasts" (quoted in Billington 2009). Such performances are certainly possible with either puppetry or animation, but this particular division of face and body resulted in a mismatched effect, as if a body composed of wide brushstrokes was supporting a head painted in extreme detail.

The issue here is lack of unity. Jonze's Wild Things read visually as terrestrial beings, inhabiting the Earth and confronting the same obstacles as any other large animals would. They run in the water; sling mud at their human friend, Max; and traverse the Earth like elephants, lumbering along with heavy footsteps. On several occasions, however, one leaps several times its own height into the air as if lifted from above. Since there is no apparent physical force (or exertion of magic) to create this impossibility, it discredits the Wild Things by making them look like marionettes on invisible strings, rather than the earthbound, living beasts they were until that moment.

The Wild Things' speech and dialogue also hamper unity. The script makes them sound not only like people but specifically American people from young Max's suburban world. While their physical appearances signal a crudeness we associate with animals, they engage in sophisticated small talk, petty gossip, and passive-aggressive group politics. As critic Kenneth Turan observes:

> The problem with this cast of characters is not so much their personalities but the way screenwriters Jonze and Eggers have turned them into neurotic adults with dysfunctional relationships. To hear them talk among themselves is to feel like you've stumbled onto a group therapy session involving unfunny refugees from an alternate universe Woody Allen movie.
>
> (Turan 2009)

The idea of presenting the Wild Things as humans in beast form is both imaginative and doable. But Jonze's puppeteers could not (or were directed not to) express with a full range of physical movement what they were communicating verbally or

experiencing emotionally. During scenes of energetic group conversation, for example, their bodies are often incongruously limp. When he made the choice to use a hybrid puppetry/animation technique, Jonze did not fully consider the principle of unity to deliver consistently credible creatures.

Performance capture: How to escape the zombies

Today's most successful fantasy film directors are beginning to work with motion capture on a frequent basis. They tend to use an alternative term, "performance capture," to underscore the actors' contributions to the animated work. This type of puppetry/animation hybrid is particularly powerful when used in creature effects. But several film directors have used performance capture to try to make animations look like real people, often with unsettling results. The eeriness of these human cartoons is routinely attributed to the "uncanny valley," a term coined by Japanese roboticist Masahiro Mori. Mori posits that as artificial figures grow increasingly human-looking by design, they begin to dip into a "valley" of repulsiveness (Mori 1970). While the uncanny valley is an important consideration, I believe that it is the second principle shared by animation and puppetry that animated humans more perilously violate: the necessity of distance between performer and performed object/image.

Film directors Robert Zemeckis, Steven Spielberg, Peter Jackson, and James Cameron have all used extensive performance capture in their own twenty-first-century high-budget fantasy films. The three latter directors worked with Weta Digital, the New Zealand-based special-effects studio noted for its pioneering motion-capture work in *The Lord of the Rings: The Two Towers* (2002), *King Kong* (2005), *Avatar* (2009), *Rise of the Planet of the Apes* (2011), and *The Adventures of Tintin* (2011). While Weta was working with motion capture for the earliest of these films in the early 2000s, American film director Robert Zemeckis (*Back to the Future*, *Death Becomes Her*) was using mocap to make realistic-looking animated humans in his ImageMovers film studio. Zemeckis has a history of successfully mixing film from diverse sources, directing the famous interactions between people and cartoons in *Who Framed Roger Rabbit* (1988) and between new and historical film footage in *Forrest Gump* (1994). But in his particular brand of performance capture, he moved away from juxtaposing animation with live action (as seen in *Roger Rabbit*) and towards a *blending* of human with cartoon by turning a human actor into her animated likeness. The child characters in his first fully animated film, an adaptation of Chris Van Allsburg's *The Polar Express* (2004), were famously criticized for their eeriness – for impersonating humans too well. One critic called them "likeable zombies" (Burr 2004), another "as blank-eyed and rubbery-looking as moving mannequins" (McDonagh 2004). But as a producer and director, Zemeckis remained committed to advancing this style of naturalistic animation for several films that followed: *Beowulf* (2007), *A Christmas Carol* (2009), and *Mars Needs Moms* (2011). Effects technology improved considerably between each film, and the characters grew ever more detailed and convincingly human-looking. But the criticism of his animation style remained steadfast, and critics began to note that his experiments actually diminished the power of animation in his studio's

work. *New York Times* critic Manohla Dargis offered a particularly interesting analysis of the performance capture in *Beowulf*:

> I don't yet see the point of performance capture, particularly given how ugly it renders realistic-looking human forms. Although the human faces and especially the eyes in "Beowulf" look somewhat less creepy than they did in "The Polar Express," … they still have neither the spark of true life nor that of an artist's unfettered imagination. The face of [Anthony] Hopkins's king resembles the actor's [face] in broad outline, in the shape and curve of his physiognomy. But it has none of the minute trembling and shuddering that define and enliven – actually animate – the discrete spaces separating the nose, eyes and mouth. You see the cladding but not the soul.
>
> (Dargis 2007)

According to this critique, these hybrids are less believable and compelling than either human actors or pure animations (using the "artist's unfettered imagination") might have been. The creators borrowed from the crafts of acting and animation to build these realistic humans but lost the advantages of both.

The digital characters in Steven Spielberg's more recent performance-capture film *The Adventures of Tintin* (2011) have proven that animating humans without falling into the uncanny valley is now feasible. Critic John Beifuss conceded that the film "more or less climbs out of this [uncanny] valley," but then continues:

> The animation is extraordinarily impressive, yet the final impression remains: So what? … If you're going to have Tintin more closely resemble a boy actor than Hergé's drawings, why animation? The stylishly flat cartooning of the opening credits is more attractive than the 3D animation that follows.
>
> (Beifuss 2011: 3)

This "what's the point?" response echoes the *Beowulf* review above, as well as a number of other reviews of *Tintin* and earlier performance-capture films. So if we accept the idea that near-photographic human animation is tolerable but boring, why are directors pushing so hard to do it? There may be anthropological, artistic, budgetary, and logistical answers to this question, but what interests me is the implicit assumption that human likeness itself expresses humanity. Embedded in this perspective is a mistrust of animated images and performing objects. This excerpt from an interview with *Beowulf* visual-effects artists Ken Ralston and Jerome Chen reveals this curious ambivalence:

> … there was no razor stubble on the Tom Hanks character in "Polar (Express)." But here (in Beowulf), on Anthony Hopkins's Hrothgar and even on Ray Winstone's Beowulf, we wanted to see scars on their faces, as if they'd had to shave with knives. We wanted to see the pores. We kept on adding things until we really felt engaged by this character. … "Beowulf" is a

> movie for adults about deep, dark emotional journeys, and you can't get any sense of that in a cartoon character … .
>
> (quoted in Kehr 2007)

It is illuminating that artists working on a major *animated* feature believe that animation cannot convey serious feelings and that naturalistic detail creates engaging characters. In fact, puppetry and animation excel at portraying the deepest human emotions by their own means. Animation and puppetry reflect particular, selected characteristics of what they represent; they distill, filter, and exaggerate. As Penny Francis asserts, a puppet is a "representation and distillation of a character" (Francis 2012: 13), which could also be said of a fictional creature in an animated film. Pursuing perfect human mimesis in animation (as in puppetry) is to misunderstand its nature. Indeed, it is a symptom of a common bias towards naturalistic human acting and a tendency to view all performance forms through its lens.

Additionally, actors performing animated images of realistic human beings lack the requisite distance between creator/performer and character that good animation requires. Actor Jamie Bell's actual in-studio performance of Tintin was diminished in translation in the same way the work of *Beowulf* actors Robin Wright and Anthony Hopkins was visually muted by their animated semi-likenesses. In Wright's case, for example, the movie audience misses the full force of her character work and sees instead an overlay of her face with less authentic qualities: those of an artificial woman.

It helps to contrast Wright's example with a performance-capture character from the same film (significantly, not a human one) that does apply the distance principle and puts performance capture to good use. Actor Crispin Glover performed Grendel, an intensely contorted humanoid monster, in Zemeckis's performance-capture studio with a full grasp of the character's strange physical dimensions (*A Hero's Journey* 2008). He was necessarily conscious of the vast difference between his own body and that of his monster. This is what links effective performance capture to puppetry. Glover was portraying a creature quite physically distant and different from himself, as if he were inside a highly sophisticated, virtual costume puppet. Actors who climb into costume puppets know that their own performances will be obscured; only their manipulation of the puppet will read to the audience. In this way, the mocap suit works like a suit puppet of the imagination.

Based on these examples, I posit that simple human mimesis is a misplaced goal for hybrids. Creature effects, however, present powerful opportunities for mixed-breed technologies because they automatically offer the requisite distance between performer and performed. And, when done well, performance-capture effects for animals and other fantastical beings also achieve the unity necessary for plausibility. A more specific look at actor Andy Serkis's work will illustrate how performance capture for creatures is analogous to puppetry and how it enhances both the way film actors work with, and audiences interpret, nonhuman characters.

John Bell writes about the significance of Serkis's first experience with performance capture for the role of Gollum in Peter Jackson's *The Lord of the Rings: The Two Towers* (2002). Serkis describes how he first witnessed the animated creature's image through special goggles and was astonished by the way it reacted to his own

movements. That experience of puppeteering was his introduction to the art of digital acting:

> Ramon … [a "Mexican puppeteer"] explained it was more like controlling or driving a puppet than acting the character, and that I had to project life into the Gollum on the screen. Thinking I understood what he meant, I donned the goggles. What a buzz! Instantly it made sense. I got into the character as Gollum, hunching my back and crouching on my haunches, splaying my fingers, and in the goggles Gollum responded, simultaneously mirroring my every action, only in a more extreme way.
>
> (quoted in Bell 2008: 161)

Many considered this intense actor/animator collaboration a critical breakthrough in creature effects. It lent the not-quite-human, tortured Gollum a complex psychology and allowed him to fit in with the fantastical, live-action world he was to inhabit.

Serkis has since created a niche for himself as a digital actor, most notably performing the iconic ape in Peter Jackson's *King Kong* (2005) and Cesar, the lead chimpanzee in Rupert Wyatt's *Rise of the Planet of the Apes* (2011) [henceforth *Rise*]. In both films, Serkis performs photorealistic animals that possess some depth of character and interact extensively with humans in live-action settings.

Author Dan North bookends his study of virtual acting and special effects in *Performing Illusions* with references to the evolution of the *King Kong* films. He concludes that Kong's character benefits from the "vestiges of that human-ness" lent by Serkis in 2005, posing that "*King Kong* marks a point of convergence between physical performance, visual effects and animation" (North 2008: 180).

The artistry of rendering the creatures before and after Serkis performed them belonged to a team of animators and effects artists. How much of Serkis's performance plays out in the final images has varied from project to project (North 2008: 180). But in all of these examples, principles of unity were observed. Even with multiple artists at the helm, each of the resulting illusions presents whole creatures that honor physical laws and the particular confines of their well-researched anatomies.

Some of the effectiveness of naturalistic animal hybrids may also lie in audience relationships to the familiar-but-nonhuman. I suggest that we see the animal as *other* (as we do puppets and animated characters), and though an animal may exhibit aspects of what we call humanity, it is still of a different species. I draw this idea in part from an observation Basil Jones has shared from his *War Horse* experience:

> The audience quickly develop an affinity and fascination with the horses. They clearly want to understand what the horse is feeling and thinking and as a result, they become avaricious readers of horse semiotics. Whatever the horse puppeteers do (from ear twitching, flank shivering and eye-line alteration, to whinnying, nickering and blowing), the audience hungers to interpret.
>
> (Jones 2009: 261)

A human-performed animal like Cesar generates a range of expressions, gestures, and sounds that invite this type of audience interpretation. And this engagement does not require the kind of photorealism we see in *King Kong* and *Rise*, as the semi-transparent wooden puppets in *War Horse* prove. But Jackson's team built a Kong that would give the audience additional information to interpret: the more finely nuanced feelings and experiences of this complex primate. Indeed, performance capture seems ideally suited to the portrayal of *hybrid* human characters: an ape who falls in love with a woman (*Kong*), a chimp cursed with human intelligence (*Rise*), and emotionally tormented humanoid beasts like Grendel and Gollum.

Weta Digital's ability to create a whole club of diverse, realistic, tangible, and spontaneously performed animals in *Rise* has even further implications for puppetry and animation.[5] Prior to such successful hybrids, directors more or less had to choose between animation and puppetry for creature effects, weighing the complementary pros and cons of each. There was a time when George Lucas essentially had the options of either building conventional puppets for his *Star Wars* creatures, with all of the attending physical limitations and challenges (e.g., Yoda in *The Empire Strikes Back*), or creating post-production animated characters that no one could ever touch (e.g., Yoda in *Attack of the Clones*). As advanced hybrids, the CGI apes and chimpanzees in *Rise* capitalize on the advantages of both animation and live-action puppetry as spontaneous, tangible, artificial images (the film abounds with primate-human touching). And part of the reason these hybrid characters can embrace people is because they are present in the studio with them: they are actors performing together.

Performance-capture creatures can honor both unity and distance, and consequently expand the boundaries of both animation and puppetry. They also bring other logistical and creative advantages (as well as added complexities), but their contributions to animation and puppetry are clear. They make animation more spontaneous and lend the possibility of naturalism if that is desired for a particular kind of communication with audiences. To puppetry, they bring the possibility of operating photorealistic images and participating in the creation of a new species of make-believe.

Conclusion

The types of hybrids I have discussed here all follow a tradition of energetic invention. Artists generate new tools, combine forms, and devise technologies to make imaginative creatures, effects, worlds, and relationships. With digital puppetry, animation and puppetry are gaining new ground and changing the way in which audiences interact with fictional characters. And performance capture is enabling film directors to more precisely communicate what is inside their heads. Animation and puppetry are asserting their lasting relevance via this intermixing, even as (and perhaps because) it destabilizes definitions of both. As more hybrids come into regular use, artists newly experimenting with animation and puppetry will have to shake off inherited notions that they are limited, simplistic crafts and trust the considerable aesthetic powers of images and objects that perform.

Notes

1 "Creature effects" is a common term for special effects applied to fantastical creatures or animals, such as the dinosaurs in *Jurassic Park* (Steven Spielberg, director, 1993).
2 By "traditional" I am referring to the type of animation (drawn or CGI) that relies on the animator's art without use of motion capture or other digital puppetry tools.
3 "Live-action" generally refers to the filming of actual actors, animals, and/or puppets, as opposed to animated characters.
4 A suit puppet (sometimes called a costume puppet) is a large figure worn like a costume by its manipulator, who is fully concealed within. Big Bird, Chewbacca, and C3PO are all suit puppets.
5 To view a short documentary on the making of *Rise of Planet of the Apes*, see <http://www.youtube.com/watch?v=XM9Pvfq1KhE> (accessed August 14, 2013).

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