

## Transcript of “Rough Magic”

### By Gina Bloom on Performing Shakespeare through Gaming Technology

GINA BLOOM: I wanted to start by thanking all of you for taking the time to be here. The Folger was the first research library to welcome me when I was a graduate student some two decades ago, when I spent a very memorable summer poring over translations of Ovid in the Reading Room. And, really, I count it as the highlight of my career to be able to be here to speak to you on the occasion of Shakespeare's birthday.

It is especially ideal and amazing to be speaking from the stage of the gorgeous Folger Theatre in light of my topic today. I'm going to be talking about Shakespeare performance as a site of experimentation with media technologies, the most recent experiments being those that involve motion-capture technology.

So some of you may know that the Royal Shakespeare Company, to cap their landmark 2016 season—I won't ask you to guess what happened that year: the 400th anniversary of Shakespeare's death—used motion-capture technology in their production of *The Tempest*, and they touted this as the first major theatrical production to do so. And what they did (I'll just give you an image here): they had the actor who played Ariel, Mark Quartley, wear a costume that operated as a controller for his digital avatar, this projection. So Ariel appeared on the stage in a human bodily form and, simultaneously, in the form of this animated avatar, whose movements mirrored those of the human actor, and I'll play you a couple of very quick clips just to give you a sense of what this looks like.

[CLIP from the Royal Shakespeare Company's production of *The Tempest*, 2016, with Simon Russell Beale as Prospero, Mark Quartley as Ariel:]

PROSPERO:

I am ready now.

Approach, my Ariel. Come.

Enter Ariel.

[EERIE MUSIC]

ARIEL:

All hail, great master! Grave sir, hail! I come

To answer thy best pleasure.

[The Tempest, 1.2.221–25]

BLOOM: And I'll give you one more, just so you can see when Ariel actually comes onto the stage.

[CLIP from the Royal Shakespeare Company's 2016 production of The Tempest:]

ARIEL:

I have dispersed them 'bout the isle.

The King's son have I landed by himself,

Whom I left cooling of the air with sighs

BLOOM: That's Ariel down there.

ARIEL:

In an odd angle of the isle, and sitting,

His arms in this sad knot. [He folds his arms.]

PROSPERO:

Of the King's ship,  
The mariners say how thou hast disposed,  
And all the rest o' th' fleet.

[EERIE MUSIC]

ARIEL:

Safely in harbor  
Is the King's ship

[The Tempest, 1.2.261–69]

BLOOM: So to make all of this possible, the RSC collaborated with two companies on the cutting edge of entertainment technology: Intel, which makes those powerful processors that allow computers like this to work, and also a company called the Imaginarium Studios. Some of you may have seen *The Lord of the Rings*, the famous *Lord of the Rings*, that had Gollum controlled via motion-capture technology; the actor who played Gollum was one of the founders of this company.

The choice of *The Tempest* for this collaborative experiment was so predictable that it had, in fact, been anticipated earlier by another theater company, David Saltz's Interactive Performance Lab at the University of Georgia. They used motion capture to animate Ariel in much the same way in their production of *The Tempest* about 15 years earlier. The directors of both productions point out that *The Tempest* is a logical choice for technological experimentation because throughout its very long production history, the play has challenged companies performing it to use their latest and greatest technologies to create these illusions for the audience. Shakespeare's First Folio (which we can find here at the Folger in many versions), the First Folio has a stage direction in it that calls for "quaint device[s]" to be used to help the earliest Ariel perform his

magical acts. So Saltz notes that the interactive technology of motion capture (that we just saw here), what I'll be calling "mocap," is just our present-day "quaint device."

Given that mocap has been used quite widely in contemporary performance, including even in Shakespeare, why did it take so long for the RSC to come on board and experiment with a mocap Ariel? Imaginarium Studios says this, by way of explanation: "We've always wanted to marry performance capture with the stage.... But there are so many risks involved. There's no room for error." What he means by this is that, unlike in a video projection that can be recorded in advance and then edited carefully afterwards to be error free, the animation created in live mocap is rendered in real time. Sensors on a motion-capture device essentially read the position of an actor's body in space and then they transmit that data to a computer that processes the data really quickly and then maps it back onto the avatar's skeleton, so that the avatar's bodily movements appear to mirror those of the live performer—and that's what you saw up there a minute ago. Live mocap is risky because computers are not always great readers of human bodies. If the performer moves in a way that the system can't understand, the computer gets confusing data, so it doesn't know what to do with it, and tries to make sense of it, and it creates an animation that, to us, looks "glitchy." The RSC and its partners invested huge sums of money and put in tremendous labor to lessen or eliminate these kinds of glitches, this glitchy animation, for their momentous *Tempest* production, and I want to argue that they did so at great ethical cost.

To demonstrate these ethical costs, I'm going tonight to contrast the RSC's heavily financed, corporate-driven mocap theater with a much, much, much smaller mocap Shakespeare theater project that I developed with colleagues at the University of California, Davis: the augmented reality game *Play the Knave*. In part because I and my collaborators lack the finances of Intel and in part because of the logic of our game's design, *Play the Knave*'s users and players and audiences encounter repeated glitches. Indeed, avatar glitchiness is the predominant experience of play—I think most who have played it have discovered this! Instead of apologizing for "this rough magic," I want to suggest that the game's glitches are at the center of its ethical promise. As *Play the Knave* presents its users' avatars as warped and even monstrous mirrors, the game requires users to engage with the digital other—not as a tool to be controlled, but as a partner with which to collaborate and from which to learn. As the game demands that players accommodate the digital other, it prompts players to inhabit their bodies differently. So *The Tempest* is an ideal play for using mocap technology, but not for the reasons the RSC cites. That is, it's not because mocap produces these magical illusions for an audience. Rather, what I'm going to suggest is, it's the riskiness of mocap and the tensions that it creates between the bodies of the human player and the digital avatar that make it such a fascinating technology for thinking through *The Tempest*—*The Tempest* being the Shakespeare play that perhaps more acutely than any other stages a confrontation between human and nonhuman or subhuman species. Whereas

the RSC's mocap Shakespeare experiment celebrates the triumph of human over alien technology, Play the Knave users use Shakespeare to foreground our enmeshment with digital worlds and to expose the inherent glitchiness of the human body. As a result of all this, these experiments with using gaming technology to perform Shakespeare open up very different interpretations of *The Tempest* that I'm going to think about with you today.

So ... Part 1: The RSC.

I want to start by looking at *The Tempest* from the RSC and how the company understood, or at least expressed, the relationship between human actors and digital technology as something of an antagonistic confrontation: human actors versus digital technology.

So the RSC (I think you've heard of it?) is a heritage institution with a very long tradition of performing canonical drama. Its partnership with two technology companies on the cutting edge of new media entertainment was several years in the making, and everybody drummed up excitement about it by saying that the project might just fail. Right? That's the best way to get people to come. And so from the start, the RSC and its partners expressed anxiety about whether they could meld their two worlds: the world of canonical, traditional Shakespeare and this new media entertainment. That anxiety was largely played out through the body of Mark Quartley, the actor playing Ariel physically and virtually. In interviews and promotional videos, the RSC artists and their collaborators comment repeatedly on the Ariel avatar's supernatural qualities and alien identity. One Imaginarium representative described the Ariel avatar this way: he says, the avatar "was created with 336 joints to match the human body, takes over 200,000 'discrete files' to run in real time, and is animated ... by a PC that is loaded with 50 million times more memory than the one that humankind put on the moon." This is the computer whose disconnection from, and even antagonism toward, its human actors was emphasized through its nickname. It was called "the Beast." The question on the minds of RSC creators and audiences was whether the beastly technology would overshadow or, worse, undermine the human actors trying to tell their stories seamlessly and compellingly.

The Beast and the avatar it helped animate turn out to be worthy opponents for Quartley. I'm going to play you a clip from a promotional video the RSC put out, which includes some interviews with Quartley on the first day that, they said, he was starting to work with the technology.

[CLIP from interview with Mark Quartley:]

MARK QUARTLEY: We're still trying to work out the dynamic, the relationship, between Prospero and Ariel and the avatar of Ariel, how that ménage à trois works. It's a bit of a—a bit confusing at the moment. I think it's getting clearer and clearer, the more we do it.

[MUSIC: "And I try to work it out ..."]

QUARTLEY: I'm a bit tired now. It's been a long day, energetic day, I feel like we're really getting somewhere. I think we've cracked the way that I can visually have a relationship with Prospero at the same time as the avatar can.

BLOOM: So note how Quartley repeatedly describes himself and his avatar as totally separate beings, each of which relates differently to Prospero. His confidence, he says, grows as he continues to work with his digital double, but even after a long day of "trying to work it out," he continues to see a divide between his body and that of the avatar. These are two entities that can have an intimate “relationship,” but they're not integrated. Quartley has tried out this really amazing technology that challenges conventional ideas about human identity, but he leaves the studio feeling his human identity is unchanged and intact. He remains an autonomous self, right? He has these fixed, stable boundaries.

The RSC's view of digital technology as the other, and even as the enemy, is rather unfortunate. Virtual environments provide an ideal opportunity to abandon liberal humanist desires to dominate our environment and instead approach the body as part of a flexible, adaptive, distributed system. This is not just a missed opportunity to engage more thoroughly with digital technology in Shakespeare performance, but I think it's an evasion of the ethical issues at the heart of the play being staged here. Characterizations of Intel's technology as “beastly” are especially worth pause, given that *The Tempest* is about a white European man, who secures his home on an exotic island by using magic to subdue the island's one native inhabitant, Caliban, a character constantly described as less than human and frequently staged in performance history as part beast. This is just some of the images that you can find through the Folger's Luna project, showing images of Caliban from different time periods. From Prospero's perspective, Caliban is something like a glitch, a noisy and unpredictable disruption in Prospero's plan for mastery over the island's inhabitants and visitors.

The RSC's narrative of human actors successfully conquering beastly technology uncomfortably mirrors Prospero's own narrative of conquest. The *Tempest* is, of course, centrally concerned with the problem of turning other beings into tools for human progress, and yet the RSC production manages to sidestep this issue almost entirely. Reviewers describe Simon Russell Beale's Prospero as (and I'll just give you one quote) "less ... colonial tyrant than sorrowing mentor" to Caliban and like a loving father figure to Ariel. So that's how the production came across to reviewers. Beale's Prospero does exhibit remorse, but not for his treatment of Caliban or Ariel, but for his treatment of his noble political enemies. Now we've seen this sympathetic portrayal of Prospero before; it's not unusual, this emphasis on his humanity, and one reviewer calls this "the most human, complex, and vulnerable Prospero I've ever seen." This is not unusual in the play's long production history, but it is particularly noticeable in this case. So, Beale: the last time he performed in *The Tempest* for the RSC was 25 years earlier, when he played Ariel, and he was a vengeful Ariel who was so angry. His iconic gesture was to spit in Prospero's face when finally released from servitude. That anger, which highlighted the problem of forced servitude, is completely invisible in this 2016 production.

This production, instead of grappling head on with *The Tempest*'s central and uncomfortable ethical dilemma—that is, how can we empathize with a protagonist who forces into servitude the entities he finds on this island? (this is central to *The Tempest*)—the RSC, instead of grappling with that, I think presents a metanarrative of their own capacity to master the alien other of digital technology. In the production and in the commentary around it, Prospero is a conqueror, but not of island inhabitants, for whom he cares deeply in this production; he's a conqueror of technology, the beast that must be made to serve human will. And, not surprisingly, a lot of the reviewers who praised this production's effective use of mocap technology frequently conflate the production's director, Gregory Doran, with Prospero. They represent both figures as triumphant in their quest to tame their beasts. Here is just one reviewer (to give you a bit of this discourse): this reviewer writes that Doran "presses not just the sprites of the island, but the wizardry of digital technology into Prospero's power." So every *Tempest* production testifies to Doran's and Prospero's mastery as long as the technology functions seamlessly. In this triumphal account of the play and of the relationship between humans and computers, there is definitely "no room for error," no room for the glitches in animation that would betray human failure to master the digital other.

So what might happen if we let the glitches remain? What if we stage, instead of trying to eliminate, human failures to master the digital other?

## Part 2: Play the Knave's Glitchy Bodies

Just as Caliban serves as a constant reminder of Prospero's ethical compromises, so glitches in mocap can have a productive function. They can expose the ethical stakes of aesthetic commitments in Shakespeare performance. To explore this further, I want to shift now to another mocap theater project, Play the Knave, and I'm going to talk in a moment about why I want to read the RSC alongside Play the Knave. But first I'm going to give you a demo of the game for those who are not familiar with it. (And Brandon, you can switch over to this other computer. Thank you.)

So the basic idea here is that users stage a Shakespeare scene of their choice. They can also write their own script and upload it to play any script that they would like. But first they have to design their virtual production.

I'm just going to give you a quick tour of the menu so you can see it.

So they can "warm up." They can play a set of "theater games" that were designed by Sawyer Kemp, who is here in the audience. Where's Sawyer? There's Sawyer back there. These are sort of improv theater games. And then, as I said, write their own scripts (through our website) that they can then just upload right into the game. They can play around with it. [Points to "Free play"] What we're most interested in is "Performing a scene from Shakespeare." So let's perform a scene from Shakespeare.

"Tragedy, comedy, history." We're looking for The Tempest. Any guesses where we're going to find it? Any guesses? We're going to find it in "comedy," just like the Folio. [Selects "Comedy"] There's our Tempest.

You can also, if you're not sure, filter by the number of players you have. You can filter by "theme"—this is if you don't know which play you're looking for. So I would like "a fighting scene"; "famous lines"; I would like to sing; "death" ("death" is always a popular one). Or you can have it choose a scene for you.



But we know what we're doing, so we're going to go back over here to The Tempest. [Selects "The Tempest"] And these are all the scenes for The Tempest. Depending on what you want to do, a quick cast comes up here and, if you don't know the scene, a synopsis of the scene. Thank you to the Folger Digital Texts, where we get a lot of the texts that we're using here that we edit, because it is open access and available for us.

And so we're going to do "To free or not to free." This is the scene where Prospero talks to Ariel, his servant, and tells Ariel what more he needs him to do. So we're going to choose that one. [Selects that scene] You can do a "warm-up," which we won't do today, due to lack of time. You can do the warm-up; we'll skip the warm-up for now.

And then we have two versions. I actually have a team of undergraduate interns who edited Shakespeare scripts to put them in the game. There are hundreds of scripts; we have them in two versions. They're always edited because—we all know this about performance—you always edit the scenes. So we edit them also to make them playable in the game. The full version's a little longer and some of Shakespeare's more complex imagery is left in. And if you're really new to Shakespeare or you're dealing with kids or you just kind of want to get the story line right, you can do the abridged version. We're going to do the full version today.

And then it's going to be karaoke, so you can choose how fast you want those lines to come at you. [Indicates "Slow," "Medium," and "Fast" options] I like this because I think, for teaching purposes, it's nice to have people move through different speeds: Start them slow, move them up. Our actors are pros, though—they got to try it a bunch of times this afternoon—so we're going to do... and don't worry, I won't be calling on you guys to act. [LAUGHTER] We'll do "Fast."

And then you decide who's going to play. So we have our script, right? We're creating theater here, virtual theater. We have our script and we know the characters we need. Now we need our actors. It's a virtual production, so we need avatars.

Now we're going to select our avatars. So we have lots of different avatars here and the easiest way to find them is to filter by costume. [Selects "Ancient"] We have ancient avatars—maybe you're doing a Roman tragedy or you just want to set something in ancient Rome or Greece. You can also go for the more traditional Elizabethan avatars. [Selects "Elizabethan"] We tried to have avatars that look like America. We have a boy here, a little boy. And then, of course, we have

modern avatars. [Selects "Modern"] And there's a lot of range here. [Displays other options] Some people like to choose somebody who looks like them; others like somebody who doesn't look like them—that's always fun. You can, again, have the avatar chosen for you, which is also a lot of fun. And then finally, we have fantasy avatars [Selects "Fantasy"] So there's your fantasy avatars.

We're designing our theater production here, we're thinking about Ariel, so what do you guys want to see for Ariel?

AUDIENCE: The alien... the blue one...

BLOOM: The blue one? How many people want the blue one? Hands? How many people want the alien? Okay, blue one's the winner. All right, Ariel.

And then we have Prospero. Should I go back to any? Do we want to make it historical? Do we want to go for something... what do people want to see?

AUDIENCE: The alien.

BLOOM: The alien? Yeah? The alien Prospero? The alien? All right, let's do it. People love this alien. This is the one you want, right? Yeah. All right.

And so we've got our costumed actors, we've got our script, and now we want sound design, right? So we've got some options here—this music was written by an undergraduate. [Music]

You can listen to it. A little "Anger." A little "Eerie." [Music] "Despair," maybe for Hamlet, big speeches. Well, maybe here, "Grand speeches." [Music]

And then we have "Atmospheric sounds," which are also an option. [Sound effect of clashing swords] I won't play them all for you. I think we like the "Storm" scene for this one. [Sound effect of storm] Yes? We like the "Storm" scene. [Sound effect of storm]

So now we have most of the components, but we still need a theater stage—we've got to have our play put on somewhere. So we have several different theaters here. We have the "Rose Theatre in London" (and these are all donated to us by some of the people who've helped to make these, theater historians); we have "Queens College temporary stage" here; the "Container Globe," which is a version of the Globe that's been made out of containers—we have the 3D model here; and then the "Stratford Festival stage," partly because the game was up there in Stratford. So we're going to go with this, "Queens College," because I think it shows up best for you. Yeah? Look good to you all? Okay.

So we've done it all. We've got our production. [Screen shows "Disclaimer" and "OK" button] Sign your life away here.

And then I'm going to invite up our actors who are here to play for us. So Justin Gross and Raquel LeBlanc!

[APPLAUSE]

Justin and Raquel are from Montgomery Blair High School and they are here to play for us. Take it away!

[ACTORS FACE THEIR AVATARS, WHICH APPEAR ON A PROJECTION SCREEN]

JUSTIN GROSS: Okay. [LAUGHTER as alien avatar appears] Yes!

[APPLAUSE]

RAQUEL LEBLANC as ARIEL:

All hail, great master! Grave sir, hail! I come  
To answer thy best pleasure.

GROSS as PROSPERO:

Hast thou, spirit,  
Performed the tempest that I bade thee?

ARIEL:

To every article.  
I flamed amazement. Sometimes I'd divide  
And burn in many places.

PROSPERO:

My brave spirit!  
Who was so firm that this coil  
Would not infect his reason?

ARIEL:

Not a soul  
But felt a fever of the mad and played  
Some tricks of desperation. The King's son, Ferdinand  
Cried "All the devils are here!"

PROSPERO:

Why, that's my spirit!

But was not this night shore?

ARIEL:

Close by, my master.

PROSPERO:

But are they safe?

ARIEL:

Not a hair perished.

The King's son have I landed by himself

PROSPERO:

And all the rest of the fleet?

ARIEL:

Safely in harbor

Is the King's ship.

[LAUGHTER by actors, as avatars are glitchy]

PROSPERO:

Ariel, thy charge

Exactly is performed. But there's more work.

What is the time of the day?

ARIEL:

Past the mid season.

[LAUGHTER by audience, as avatar is glitchy when LeBlanc kneels down]

PROSPERO:

At least two glasses. The time betwixt six and now

Must be spent preciously.

ARIEL:

Is there more toil?

Let me remember thee what thou hast promised

Which is not ye performed thee.

[LAUGHTER by actors and audience as LeBlanc's avatar disappears and twitching skeleton figures appear]

PROSPERO:

How now? Moody?

What is 't thou canst demand?

ARIEL:

My liberty.

PROSPERO:

Before the time be out? No more.

ARIEL:

Remember I have done thee worthy service.

Thou did promise

To bate me a full year.

PROSPERO:

Does thou forget

From what I did free thee?

Hast thou forgot

The witch Sycorax?

ARIEL:

No, sir. No, sir.

PROSPERO:

Thou hast. I will rend an oak

And peg thee in his entrails.

ARIEL:

Pardon master.

I will do my spiriting gently.

PROSPERO:

Do so and after two days

I will discharge thee.

ARIEL:

That's my noble master!

What shall I do? Say, what?

PROSPERO:

Be subject

To no sight but thine and mine, invisible

To every eyeball else. Go, hence!

[The Tempest, 1.2.224-362]

[APPLAUSE]

BLOOM: Thank you. Thank you, guys. So, by the way, this whole production gets recorded. I won't play it for you now. But they've essentially made a little animated video that they can then look at or edit or share it with somebody.

So you can see that Play the Knave is similar to The Tempest production of the RSC in certain ways. [LAUGHTER] Certainly we're performing Shakespeare via live mocap, yes. And the players and actors are performing before all of you, live spectators, and you're watching them animate their avatars in real time. Play the Knave differs, though, not only because we're using amateur performers here, instead of the RSC actors, but also because, as you saw, Knave's mocap is profoundly glitchy.



So you may be wondering why Ariel's avatar doesn't look like this. I can give you a very long technical explanation, but I won't for now. What I will tell you, and what's important to know, is that the RSC system is astronomically more complex and expensive than what we have here. Our players, you may have seen, are not wearing special suits. They just stepped right up. We're using that tiny little camera in the front there. That's all we're using instead of 27 cameras, or sometimes people use more. And I'm just using this regular PC computer—any of you might own the same one. So it's hardly a beast. It's powerful, but not a beast. So were we to use the RSC's equipment, *Play the Knave* would not be available, as it is now, for classrooms and theater lobbies and museums and this lecture. But I want to set aside why the glitches are there because I want to think about what's at stake in their presence for players and audiences of *The Tempest*.

So we can observe, first noting that the glitchy avatars look unnatural, indeed monstrous, even if they had been played by humans—maybe we should have put a human avatar in there so you can see. But regardless, anything up there, you're going to see hands and feet twitching erratically. We got to see floating. You sometimes may have seen a hand penetrate through a stomach, an elbow contort in an unnatural direction. A head sometimes sinks down into the body, a body disappears entirely—we played with that, but it is, technically, a glitch. So you can see why a company like the RSC would have been worried about glitches in mocap.

These kinds of glitches are especially disturbing in mocap, compared to other kinds of animation, because of the relationship mocap sets up between the human actor and the digital avatar. When actors use their bodies to move their avatars, they are invited to feel a sense of intimate connection with their digital doubles. The physical performing body melds with that of the avatar, producing a shared, distributed body that exists across and between the screen and the ambient space. Technically speaking, in fact, the body of the avatar is not materially distinct from that of the human controlling it. To help you understand this, it's useful to think about the differences between mocap and something like photography or film. In photography and film, the human actor's body is translated into or represented through another form. But mocap works topologically—that is, it works via mapping—so mocap doesn't leave behind the physical form of the captured body. There's this meshing of the physical and the virtual that allows players to develop a significant connection with their digital doubles.

There's a flip side, though. The disruption of that... You get this amazing connection, but the disruption of that connection provokes repulsion. And this Kinect motion-capture camera that I have there in the front, which we use, has been especially associated with this response of

repulsion. This might be one reason why Microsoft decided to pull the camera from production about a year ago—they stopped making it. This has been great for my project, however, because there are lots of cheap Kinects around. I buy them up, and then I have an equipment loan program so that teachers who can't afford the technology or don't have it on hand can borrow a kit from me and have the equipment sent to them. So it works for me. But what Microsoft found is that the experience of playing via Kinect could be unsatisfying and even horrifying.

Indeed, most commercial games that are made, or were made, for Kinect, lessen the horror. They do this by stripping the user of any actual control over the avatar. Some of you may have once played this game: Dance Central. I won't ask for hands. But the avatar essentially moves independently on screen. And what the user, the player, does, is try to mimic the avatar. So it's the opposite. You try to mimic the avatar and you get points scored whenever a joint on your body matches the position of the avatar. So you did it, you mimicked what it said, you get a point. No matter what the user does, what the player does, the screen presents a beautiful, perfect dancing body.

Play the Knave differs from these games, though, in that, like the RSC Tempest production, it allows the player control over the avatar. And this design decision, combined with our low-cost mocap system, means that the monstrous avatar body is allowed to display itself. So players come into this thinking they're going to get to be Ariel, but everybody's Caliban when you play this game.

The experience of play is akin to playing a fumblecore game. I don't know if any of you have come across this genre of games, but it's a genre of video games that intentionally glitch in order to disrupt the seamlessness of play and the user's sense of mastery over an avatar. The whole point of these games is to disturb players' conceptions of ownership of their bodies and control over their bodies. Play the Knave accentuates this phenomenon because in a fumblecore game—and you all know this, because you use a mouse and a keyboard, right?—when the computer doesn't do what you want it to do, you can say “aargh,” blame it on the mouse or blame it on the keyboard. But in Play the Knave, there's nothing to mediate, no object to mediate your relationship with the technology and with the avatar, because the player's body is the controller. When the player's body serves as both actor and mediator, players feel more responsible for the avatars' performance on screen. And this is where we find the ethical promise of glitchy mocap interfaces for Shakespeare performance.

There's a performance artist named Susan Kozel who has used mocap in her work, and this is what she says about it. She says, "When our data seems to perceive and act independently and at a distance from us, the composition and sanctity of the self ... is called into question." So Kozel is an experimental artist, and she can embrace glitchiness as a value in a way that conventional theater companies like the RSC presume they cannot. For the RSC, remember, "there's no room for error," right? So the RSC's insistence on displaying perfection and human mastery over technology in their production is not an inevitable approach; it's a calculated and expensive decision about brand identity that I think underestimates what Shakespeare theater can do for its actors and its audiences.

In fact, I think that glitchy mocap offers a unique opportunity to explore how hierarchies of all sorts operate in Shakespeare—hierarchies between men and women, masters and slaves, and even humans and technology. I'm currently leading a large-scale collaborative data analysis project where we're studying how thousands of users of Play the Knave—because, remember, I said we record all of this—at dozens of installations, how they responded to the glitchy interface. And this is a research question that also informs my teaching with Play the Knave in K-12 and college classrooms. We really think about critical digital media literacy and how we can develop that through Shakespeare performance.

I'm going to give you just an example of one installation that, because it focused on *The Tempest*, illustrates my argument particularly well. So this was an installation that was part of a full-day workshop on performance-based techniques for teaching Shakespeare, a collaboration with Shakespeare scholar-teachers from several other universities that are noted here.

So what we did is, we brought together a group of undergraduate theater and English majors, and they spent a day delving into *The Tempest*, into the themes and the characters, using different kinds of performance-based approaches. We especially focused on the scene we just saw and another scene involving Caliban and Prospero. And then, as our culminating activity, the groups performed these scenes via Play the Knave's gaming platform. Some of you may have done these kinds of theater-based techniques for studying Shakespeare—a lot of the activities that came first emphasized self-discovery, and, as is generally true of much theater-based teaching, they tried to get students to connect more deeply with their bodies, so that they could then use their bodies as expressive vehicles for the text, to convey their interpretations of the text. By the time the students came to Play the Knave, they had established movement patterns and voice pacing for the characters that we were looking at.

Play the Knave threw a wrench into their plans. Students felt that they had achieved some mastery over Shakespeare's text and over their own bodies, but they were now forced to take on a new scene partner, a digital interface that constrained their performance options and their sense of personal expression. Some students found this very frustrating, and many players do find it very frustrating. Others saw it as an opportunity. They improvised. They tried out different sorts of bodily movements or they just laughed at their follies as they tried to get a seamless animation. These and many other students who explore Shakespeare through Play the Knave approach the interface with a ludic spirit, often privileging "play" as a process over "the play" as a product.

At the workshop, this playful engagement with the digital platform opened up a rich conversation amongst the students, not only about theatrical performance—that is, we thought about the relationship of director to actor, the function of improvisation, the value of playful exploration, all these things—but it also opened up into a really interesting conversation about *The Tempest*, a play that has often been read as a metaphor for theater. Even more to the point, *The Tempest*, as I've been saying, is about the ethical pitfalls of treating others as one's tools. Insofar as Play the Knave stages an encounter between human player and what is, from the player's perspective, a digital other, the game puts every player into Prospero's position. Prospero imagines himself as the supreme leader who must grapple with recalcitrant underlings: the slave who revolts, the servant who constantly asks for his freedom. Play the Knave's avatars proved to be similarly untamable, and their glitches were constant evidence of the human player's failure to master the digital machine, master the other. Knave's glitches thus prompted the group to think very differently about the limitations of Prospero's control over these beings he sees as noncompliant tools. Like Prospero, students discovered that in the act of controlling another being, one creates a bond with it, and this interdependence necessarily undermines social and political hierarchies. Who controls whom?

At the end of *The Tempest*, Prospero reluctantly accepts responsibility for and kinship with Caliban, a being he regards as a nonhuman thing—"This thing of darkness I acknowledge mine." In much the same way, Knave's players, through the process of play, acknowledge kinship with and responsibility for the avatar bodies that are, but are not, their own.

The stakes here extend well beyond a reading of *The Tempest*. As users of Play the Knave discover the limits of their bodily autonomy and practice collaborating with, instead of controlling, a digital other, they have to set aside liberal humanist values of self-empowerment and instead practice something like an ethics of care for this entity, this avatar entity, that they feel they don't have very much in common with. Play the Knave's glitchy interface reminds

players of their responsibility for producing semiotic meaning. That meaning is only possible if the player adapts to the needs of the machine. So if you want a smoother animation, the player essentially has to empathize with the machine. Where is it coming from? How does it read me? What's our relationship like? And you have to understand how that machine reads the human body and then adjust physical movements—so as to be more easily legible. Significantly, there must be a tradeoff in the aesthetics of the performance. To get an animation that looks more seamless, human actors have to undertake a physical performance that looks more glitchy. (I'm sure our fabulous actors would never have acted the way they did, if not for Play the Knave getting them to do that.) Or, to put this differently, for the animated digital avatar to look more human, the human actor has to be willing to look a little more monstrous.

As players recalibrate their aesthetic standards, they engage in important ethical work that I've argued the RSC *Tempest* production evades.

I just want to close by recalling something that game studies scholars Naomi Clark and Merritt Kopas have said about glitches. They write this: "glitches are a kind of queer failure that we should celebrate; a failure that's too drastic and uncontrolled for the orthodox notion of 'try again and get stronger' gameplay."

The same could be said for Shakespeare performance. The RSC uses, essentially, cinema-quality graphics to amaze us, and this is much like gaming companies that invest heavily in the best graphical displays for their video games. But much, I think, is lost when we bring cinema-quality graphics into the theater and into games, and when we treat theater audiences and game players like moviegoers. Stunning graphics impress us, there's no doubt, but they move us far away from the interactive and risky pleasures that have always been at the heart of gaming and of theater. When Shakespeare ends *The Tempest* with a chess game, he reminds us that games and theater are, at their core, forms of play. No matter what technology we bring into them—into games or into theater—for actors and audiences, they need to feel like play.

Thank you.

[APPLAUSE]