5

ARTIST TO AUDIENCE

The ideal ratio of artist to audience is zero to one.

Glenn Gould

There's more to art than sitting around and looking pretty. Art works are opportunities for action, and their value depends on the tasks they afford. First comes creative activity, then sometimes performance, and finally appreciation, which includes looking, listening, reading, interacting, interpreting, liking, critiquing, and much else besides. In so far as each of these tasks calls up different skills, they get assigned to specialists: artists create works, performers perform them, and audiences appreciate them. As natural as it may sound, though, some deplore this division of labor between artists, performers, and audiences. John Cage complained that music "has consisted ... of people telling other people what to do, and these people doing something that other people listen to." His own goal, which he admits he never reached, was to "create a situation in which no one told anyone what to do and it all turned out perfectly well anyway."[1] This comes close to describing computer art, where interaction folds in elements of creation, performance, and appreciation.

Roles in situations

Situations call for tasks to get done and thus for people to do them. For example, education is a situation of teaching and learning and hence teachers and students. The art situation calls for acts of creation, performance, and appreciation on the part of artists, performers, and audiences. At least, that's the situation for traditional art forms like painting, architecture, poetry, dance, and music. Many see computer art as revolutionizing the traditional art situation by blurring the lines between artist, performer, and audience.

One commentator declares that "the position of the Kantian aesthete is no longer valid: you cause the work and co-produce it with the artist."[2] The computer art pioneer, David Rokeby, writes that "the audience becomes creator in a medium invented by the artist. The artist enables the interactors to express themselves creatively."[3] Myron Krueger, another pioneer, describes computer art as "a unique melding of aesthetics and technology in which creation is dependent on collaboration among the artist, the computer, and the participant."[4] Roy Ascott agrees: "creativity is shared and authorship is distributed."[5] This passage nicely sums up the thinking:

> For at least several centuries, in the West, the artistic phenomenon has presented itself as follows: a person (the artist), signs a particular object or message (the work), which other persons (the recipients, the public, the critics) perceive, taste, read, interpret, and evaluate ... The techno-cultural environment that is emerging, however, gives rise to new art forms, ignoring the distinction between emission and reception, creation, and interpretation ... This new art form allows what is precisely no longer an audience to experience other methods of communication and creation.[6]

How much truth lies in statements like these?

Structurally, the traditional art situation is much like communication. The philosopher Gary Iseminger defines art as (in part) a practice where there's a communicative transaction between two people mediated by a work that one produces for the other.[7] An artist creates a work for an audience to appreciate, just as, in communicative situations, a sender creates a message for a receiver to interpret. The analogy nicely fits works like paintings. Manet created *Woman with Parrot* to be appreciated by you and me, and the painting links us to Manet (fig. 5.1). A little tweaking is needed for performance works like "Summertime." Gershwin composed this song for others to perform and for us to appreciate through its performances, which

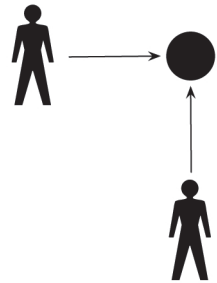

Figure 5.1 The artist (*top left*) makes a work for appreciation by a spectator (*bottom*)

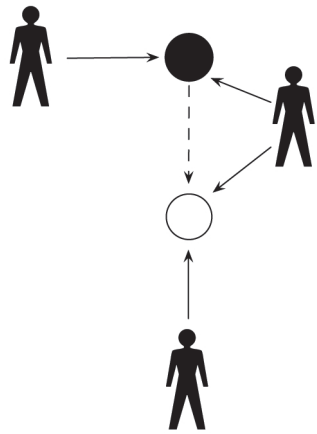

Figure 5.2 The composer (*top left*) makes a work, the performer (*right*) makes a performance of the work, and the listener (*bottom*) appreciates the work through the performance

link us to Gershwin (fig. 5.2). A longer chain links us to Gershwin than the chain linking us to Manet, but communicative chains also have many links when messages are relayed by intermediaries.

Notice that the communication model of the art situation already blurs the boundaries between artist, performer, and audience. In communication, senders of messages regularly trade places with receivers: A sends a message to receiver B and then B sends a message back to A, and so on. Anybody may send and receive messages. Likewise, artists, performers, and appreciators aren't discrete populations: they're roles, and one person can switch from role to role.

Art culture in the West is now so specialized that very few adults ever create or perform art works. For the most part, only specialist composers and performers (and children) write and perform music, and only specialist artists (and children) make paintings. Moreover, when a medium is widely used by non-specialists, we're apt to reserve art status for works made by the specialists. For example, most people take photos, but we only count artists like Diane Arbus and Andreas Gursky as making art. It sounds absurd to say that just anybody who takes photographs is an artist.

However, this specialization of the art situation is an exception in human history. In many cultures, almost everyone makes and performs art. The psychologist Daniel Levitin tells a story about the anthropologist Jim Ferguson, who lived among the Sotho in southern Africa. The villagers had just invited Ferguson to sing, and he gently declined:

> Jim knew that he wasn't much of a singer or dancer, and to him, a public display of singing and dancing implied he thought himself an expert. The villagers just stared at Jim and said, "What do you mean you don't sing? You talk!" Jim [said] later, "It was as odd to them as if I had told them that I couldn't walk or dance, even though I have both my legs."[8]

Ferguson's villagers don't regard making and performing art to require the expertise of a virtuoso. For them, almost everyone is an artist and performer.

A notorious feature – some would say failure – of the contemporary Western art situation is that it even makes a specialty of appreciation. Only those given a formidable education in art history and theory are expected to appreciate recent "high art" or "serious art" – Robert Rauschenberg's paintings, Arnold Schoenberg's atonal compositions, Thomas Pynchon's novels, and the like. Ordinary Joe is outside the audience for such art as this. Again, this is a peculiarity of the contemporary West. Most other cultures set lower demands on appreciation and open up membership in the audience to all comers.

Outside the Western high art scene, many people take on all the tasks needed in the art situation – creation, performance, and appreciation. This isn't to criticize the Western high art scene. The point is simply that we cannot generalize from a special feature of one art situation to others. In many art situations, one and the same person is an artist, performer, and appreciator – just as, in communication, one and the same person is often speaker and listener.

The lesson isn't that it's time to give up on the distinction between artist, performer, and appreciator; the lesson is that these aren't different people, but different roles instead.[9] In conversation, you alternate playing the role of sender and receiver. One person, two roles. In just the same way, artist, performer, and appreciator are roles rather than discrete populations. One person can assume different roles, unless the demands of specialization preclude playing multiple roles.

Your actions in playing the role of artist aren't the same as your actions when you play the audience role, so it makes sense to define each role in terms of the actions that belong to playing the role. This leaves room for overlap. Both making and appreciating a painting normally involve acts of looking, so the roles of picture maker and picture appreciator involve some of the very same activities. Nevertheless, the roles aren't identical if some of the activities that are involved in making differ from some of the activities that are involved in appreciating.

The artist

The role of artist is defined by the activity of art-making. What activity is that?

One strategy is to make a list. Henri coats a canvas in gesso, fills a bowl with fruit, looks at the fruit, sketches, squeezes paint from a tube, and lays down blobs of paint. Joni picks on a guitar to find a catchy tune, jots down the tune, tries out a chord sequence to highlight the tune's expressive character, and sets lyrics to a couple of measures. Each of these activities results in a work of art, but the listing strategy hides what they share in common.

A better strategy draws up a general description of "artistic activities" – those that define the role of artist. Since some works of art are made through collaboration, the same description should tells us why some collaborators help make an art work. Joel and Ethan Coen collaborate, with Joel directing and Ethan producing movies (more or less). Did they both make *Blood Simple*, one by guiding the cast and crew in committing a screenplay to film, the other by hiring the cast and crew, finding locations, and raising funds? Frances McDormand plays the role of Abby in the movie. Did she also make it? What about the gaffer's lighting set-up and the key grip's wrangling the technical equipment? Then comes the projectionist screening the movie in a cinema. Should she get artistic credit?

It's often useful to simplify by taking art out of the equation, so consider the activities that define the role of a "maker" in general. For example, in making a hockey stick, you take some lumber and give it the right shape. This is part of making the stick because it makes a difference to the features of the stick.[10] The rule is that

> an action counts as making a whatsit only if, were it not for the action, the whatsit would not have some of the features it has.

Obviously, your cooking an omelette has nothing to do with making the stick if it makes no difference to its features. From this triviality, it's a short step to the start of a description of the whatsit-maker role:

> a person plays the role of whatsit-maker in doing an action only if, were it not for the action, a whatsit would not have some of the properties it has.

Whatsit-makers make a difference to the features of whatsits.

This isn't the whole story. Suppose you coat the blade of your hockey stick in epoxy which is made by Alice in a distant factory. Were the epoxy different, the stick would have different features, but Alice doesn't play the role of stick maker. Why not? Perhaps because making epoxy isn't an activity that defines the role of hockey-stick maker? But that can't be right. There's more to making hockey sticks than shaping wood, and if you had made your own epoxy for the hockey stick, then your activity would have been part of playing the role of hockey-stick maker.

The solution is that we normally make things intentionally. Not always, for someone might make a hockey stick by accident, but a person who always makes hockey sticks purely by accident doesn't play the role of hockey-stick maker. They play that role only in so far as they intend to make hockey sticks. So the activities defining the maker role are intentional:

> a person plays the role of whatsit-maker in doing an action just in case the action is done with an intention to make a whatsit and the whatsit wouldn't have some of the properties it has were it not for the action.

This solves the problem of Alice. True, the hockey stick would have been different were it not for the epoxy she made, but she didn't make it intending to make a hockey stick, so her contribution doesn't make her a hockey-stick

maker. At the same time, you're a hockey-stick maker if you make the epoxy intending to make a hockey stick.

The artist is a special kind of maker, an art maker. Manet played the role of artist when he painted *Woman with Parrot* because his actions shaped the painting's features and were done intending to make the painting. Those who made the paints he used also shaped the painting's features, but they didn't intend to make the painting, so their contribution doesn't make them artists. Applying the description of makers to art makers,

> a person plays the role of artist in doing an action just in case the action is done with an intention to make a painting, song, poem, or ... and the work wouldn't have some of the properties it has were it not for the action.

The principle also helps with cases like *Blood Simple*. The making of the movie included actions by both Coen brothers, McDormand, and the gaffer, but not the key grip or the projectionist.

Why not the projectionist? Presumably, her actions make no difference to the features of the movie. But what if she spills popcorn in the film gate of her projector, making the screening look different? And what if she does this intentionally – she wants to experiment with the look of the screening. It follows that her actions make the screening, yet she doesn't make the movie. To solve this puzzle, recall the previous chapter. Our projectionist gums up the movie's display but she doesn't gum up the movie itself, because the movie isn't identical to its display.[11]

In sum, a person plays the role of artist when and only when they act intending to make a work in an art form, with the result that the work wouldn't have some of the features it has were it not for their action. Any specific action can count, so long as it meets these two conditions. Chipping at stone, writing a score, throwing clay, editing tape, screaming, sitting quietly in a room, writing code in C++ ... any of these may count as artistic activities.

Those who proclaim the death of the artist think of him or her as determining single correct interpretations of their creations.[12] On that view, there never have been any artists. That suggests we need a better definition of the artist role, which distinguishes artist from audience. T. S. Eliot did something in writing "The Wasteland" that no reader can do: he selected and arranged the words of the poem. Not so for any reader, even readers who play around with its meaning. In a way, readers are makers – they

make interpretations of art works. But only artists make works for readers to interpret.

A final question. Making a work with multiple displays isn't the same as making its displays. Does this mean that artistic activities exclude making its displays? Beethoven wrote the "Große Fugue." Does he collaborate with the Tokyo String Quartet in their performance of it? The question divides in two. First, would the performance have had some different properties were it not for Beethoven's compositional action? Well, yes! If Beethoven had put in more notes, the Tokyo Quartet would have played more notes. Second, did Beethoven compose the piece intending to perform it with the Tokyo String Quartet? Of course not. So while his artistic activity runs to making the "Große Fugue," it doesn't run as far as making its performances. No matter. Every performance depends on what he did because every performance would have been different were it not for his compositional act; and that's a kind of half-authorship for which he gets some credit.[13]

Computer artists

Every artifact is made by someone, including works like *Golden Calf* and *Boundary Functions*, so somebody does something that brings these works into being. That would typically be a computer artist. (They're not made by someone playing the artist role when they're made accidentally.) What activities go into playing the role of computer artist?

An answer should build on the lessons of the previous chapter. A computer art work is the item that has various possible displays, and it's appreciated through these displays, as they are generated with the help of users, by a computational process and some physical apparatus. Computer artists build the systems that allow the work's displays to be generated in this way.

For example, Snibbe played the role of artist in making *Boundary Functions*. *Boundary Functions* uses an algorithm that draws Voronoi tessellations, and Snibbe wrote the code implementing the algorithm as a subroutine of the work's computational process. He also built the physical apparatus in which user interactions take place. By writing this code and building this environment, he acted on an intention to make the work, and *Boundary Functions* would have had different features otherwise. Suppose he built the platform out of a bed of jello instead of wood, or suppose that instead of using an algorithm for drawing Voronoi tessellations, he used an algorithm to draw hexagonal tiles like a honeycomb. The end result would have been significantly different.

Does he also play the artist role in making its varying displays? The question divides in two, as we learned from the case of Beethoven's work with the Tokyo String Quartet. First, would the display you generate when you interact with *Boundary Functions* have had some different properties were it not for Snibbe's artistic actions? Obviously, yes. Second, did Snibbe make the work intending you to generate that display? Probably not. Technically, then, his activities as a computer artist don't include making the displays, even though they would have been different were it not for his actions.

Computer artists are like other artists. True, the specific actions associated with the role of computer artist differ quite a lot from the specific artistic actions of painters, poets, architects, and composers. None of these artists work with function calls, compilers, or interface drivers. However, it's to be expected that the specific actions that go into making works in any art form reflect the nature of that art form. What Manet *specifically* did in making *Woman with Parrot* is no more different from what Yamakawa *specifically* did in making *Kodama* than it is from what Eliot *specifically* did in writing "The Wasteland." Specifics aside, they all did the same sort of thing.

Those who see computer art as blurring the boundary between artist and audience can easily accept this conclusion. They say: of course computer art works are made by artists, but the interesting point is that their users aren't just the audience – they're artists too. The question to ask isn't so much whether Snibbe is an artist for making *Boundary Functions*. The question is whether its users also play the role of computer artist by generating its varying displays.

Bluntly, the answer is no. The actions of computer art users don't meet the two conditions defining the role of computer artist. My interacting with *Boundary Functions* involves me in lots of specific activities – bodily and cognitive. However, I don't do these actions with an intention to make *Boundary Functions*. If I have a little savvy, I may intend to generate a *display* of the work through my actions; but the work isn't the same as its display and an intention to generate a display isn't an intention to make the work. Moreover, the work would have exactly the same features no matter what I do to generate its display. While that display wouldn't have the same features were it not for how I act, the work, once again, isn't the same as the display I generate. Nothing I do creates the computational process or physical apparatus, so nothing I do creates the work (fig. 5.3). Consequently, I don't do anything qualifying me for the role of computer artist.

You might retort: look, the one thing I'm sure of is that these new works do change the relationship between the artist and the audience. They create

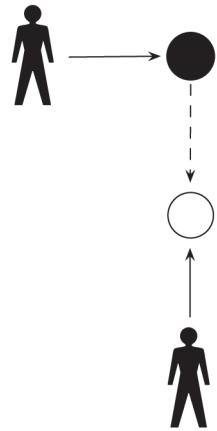

Figure 5.3 The computer artist (*top left*) makes a computer art work and a user (*bottom*) generates a display of it

a new kind of art situation. The only way to explain this is to say that we should broaden our conception of artistic activity to include what users do. From that it follows that computer artists aren't like traditional artists, and it's a mistake to treat them as the same. Fair enough, unless there is another way to explain how computer art changes the art situation. Here's a possibility: computer art has a new kind of audience.

Computer art users

The computer art situation is new and unfamiliar exactly because it brings in computer-based interaction. Computer art works have users, whose role is unlike that of a traditional audience. As Michael Rush observes, "viewers are essential, active participants in this art. No longer mere viewers, they are now users. We have come a long way from passive viewing of the *Mona Lisa*."[14] What does this mean? What activities set the role of user apart from the role played by members of traditional audiences?

The contrast between the new computer art audience and audiences of old is easy to exaggerate. Rush describes the latter as "passive" – and he puts the point more mildly than some others. Augusto Boal championed an avant-garde theater based on the premise that "the spectator is less than a man and it is necessary to humanize him, to restore to him his capacity of action in all its fullness."[15] Such talk woefully underestimates the work that

goes into being a spectator (see chapter 3). Spectators look, listen, read, and feel. They also interpret, and let their interpretation seep into their experience of the work. Since interpretation usually aims to put a work in the best possible light, evaluation comes in too. All these activities feed into the bigger task of appreciation, which is the characteristic task of any audience member. Why put audiences down as "passive" when appreciation can be so strenuous?

Giving traditional art spectators their due still sets them apart from computer art users. Users do something that traditional art audiences don't do. Through their actions, they generate displays of works. More importantly, they appreciate works by generating those displays. Traditional audiences experience, interpret, and typically evaluate works, but they don't carry out these tasks by generating their displays. That power's reserved to computer art users.

Users and performers

Granted that the user is neither artist nor traditional audience, why not identify her with a performer? The composer Rainer Linz writes that,

> "interactive" when applied to music performance can be problematic because in a broad sense, music has always been an interactive art. We could describe any musical performance as a process of real time control over a complex system (instrument), through gesture and based on feedback between performer and machine.[16]

Perhaps the user who generates a computer art work's display is more like a cellist than a tourist visiting the Louvre.

This proposal is especially serious because it threatens CAF.[17] According to CAF

> an item is a computer art work just in case (1) it's art, (2) it's run on a computer, (3) it's interactive, and (4) it's interactive because it's run on a computer.

Remember that a work is interactive just in case its users generate its displays. So if a keyboardist who performs "Brazil" is a user, then "Brazil" is interactive and clause (3) is satisfied. We'd better grant (1). That leaves (2) and (4). Does the keyboardist generate a performance by running a computational

process? Yes, if playing from a score is a matter of rule-following. So all scored music is computer art! CAF fails hopelessly to distinguish computer art from other art. For the sake of CAF, it had better turn out that users aren't performers.

Users and performers share something in common: they generate displays of works. Yo-Yo Ma performed Bach's fifth cello suite on several occasions and Sir Laurence Olivier famously performed *Hamlet* on film in 1948. However, the roles of performer and user aren't the same just because they involve overlapping activities. The roles are the same only if they involve identical activities. Is there more to performing than generating displays?

Imagine that Stephanos, a three-year-old, just happens to bang out a sequence of sounds matching the fifth movement of John Cage's *Suite for Toy Piano*. He generates a display of the movement, but is he a *performer*? Certainly not. For one thing, he's not trying to perform the movement, and performers act intentionally. Stephanos pulls off an accidental performance of the movement. But intention alone isn't enough to play the performer role. Stephanos must know what sonic features his performance must have if it's to be a performance of the movement, and he must use this knowledge in playing his piano. Thus his intention isn't merely to perform the movement, but to perform it by making *these* sounds – the sounds that performances must have if they're to be performances of the movement. Packaging this together:

> a person plays the role of performer in generating a display of a work only if he or she (1) generates the display (2) as a result of knowing what features it must have in order for it to be a display of that work and (3) with an intention to generate a display which has those features.

Stephanos doesn't play the role of performer when he bangs out the fifth movement of Cage's *Suite*, for he doesn't do (2) and (3).

As complex as this theory may seem, it's the bare minimum, the first step towards a full theory of performance. Three complications are worth pausing over.

One is that performances are often collaborative. Does Olivier perform *Hamlet*? Not exactly. He performs his part (the role of Hamlet) but not the whole play. The play is performed by the whole company, which collectively knows its features and collectively intends to put on a show with those features, thereby generating a display of the play. Olivier helps to perform the play only if he generates a part of the play as a

result of knowing that part and intending to generate a part that realizes what he knows.

Second, performers normally do more than what's required to generate a display with the required features. Ma plays the right notes in the right order, but he also has an interpretation of the work and he plays in a way that conveys his interpretation. The more interesting the interpretation, the better the performance, all else being equal. However, a heavy-handed, numbskulled performance that does no more than hit the right notes in the right order is still a performance.

Finally, performers are themselves parts of their performances. Recall our movie projectionist, who's already had it explained to her that she doesn't get artistic credit alongside the director and the set designer. Is she a performer? She generates a display of *Blood Simple*. Suppose she knows how the screening goes and intends to generate a screening with the required features. If she doesn't perform *Blood Simple*, then why not? The answer is that she's anonymous: we don't attend to the screening as one that *she* generated. By contrast, Ma and Olivier are anything but anonymous. You appreciate the fifth cello suite by hearing it performed and you hear it performed by hearing Ma perform it. Likewise, you appreciate *Hamlet* by seeing it performed and you see it performed by seeing Olivier and his company perform it.

Adding to our formula:

> a person plays the role of performer in generating a display of a work only if he or she (1) generates the display (2) as a result of knowing what features it must have in order for it to be a display of that work and (3) with an intention to generate a display which has those features, so that (4) an audience attends to the work partly by attending to his or her doing (1), (2), and (3).

Olivier generates a display of *Hamlet* which is shaped by an intention to help perform the play in accordance with his close reading of it. Audiences watch him saying the lines in a way that reflects his reading and thereby they attend to the performance and the play. In a nutshell, performers perform for an audience.[18] Our ambitious projectionist isn't a performer in this sense.

Users aren't performers because they don't do (2) and (3) – and hence they don't do (4) either. That is, they don't generate displays intending them to have certain features which they know they must have. Ma begins with a knowledge of what Bach's fifth cello suite should sound like and then he tries to perform it accordingly. Users of *Project X* don't know what properties

its displays must have and so don't try to generate displays accordingly. This point brings out two interesting features of user interaction.[19]

To begin with, users don't have to rely on their knowledge of a work in order to generate displays, because they have a resource that's not available to performers. A computer running a computational process automatically generates displays for the user when given input. In a way, it knows for the user what the performer has to know for herself. This comes across clearly when users collaborate. When performers collaborate (in putting on a play, for instance), they collectively know what features their performance should have and they collectively intend to make a performance with those features. Not so when users collaborate, as they did in maintaining *Telegarden*. Instead, they collectively rely on a computational process.

Whereas performers depend on their knowledge of a work to generate a display, users aren't so dependent. As a result, they may explore the work in a way that performers can't. Performers might explore different interpretations of the work, but only if they know the work. Users must explore the work itself, by generating different displays of it, before they're in any position to interpret it. Performers know the work and figure out its significance; users must figure out the work by generating its displays. So both users and performers engage in exploratory interpretation, but only users explore works themselves simply by generating their varying displays. That's why they're often surprised at what transpires.

Another way to bring out the contrast between performers and users is to look at what each achieves. A performer's achievement consists in knowing the work, using that knowledge to formulate a performance plan, and executing the plan to generate a display of the work for an audience. The user's achievement is to generate displays of a work, learning enough from each new display so as to discover the work.

None of this implies that it's impossible to perform computer art works. Someone who knows *Project X* very well – a long-time user – might be in a position to use her knowledge to generate displays with certain features. In doing this, she'd play the role of performer rather than user. However, this mode of engagement with computer art is rare, if it occurs at all. On one hand, this suggests that as users come to know computer art works better, they begin to take on the performer's role. The roles shade off into one another, and nothing prevents one person from playing both roles. On the other, this underscores the difference between user and performer.

Getting into it

Contrasting users with performers highlights what's special about the user role. Users don't meet conditions (2) and (3) of the theory of the performer role. Instead, they rely on a computational process that automatically generates displays of a work, leaving them free to explore the work. Since they don't meet (2) and (3), they can't meet condition (4) either. But although users aren't performers, they do seem to share this characteristic with performers: they generate displays for an audience, if only for themselves. If that's right, we need an analogue of (4) for the user.

Some historians trace the ancestry of computer art to 1960s Happenings and mid-twentieth-century avant-garde performance art and theater. Here Allan Kaprow describes one of his Happenings:

> Everybody is crowded into a downtown loft, milling about, like at an opening. It's hot. There are lots of big cartons sitting all over the place. One by one they start to move, sliding and careening drunkenly in every direction, lunging into one another, accompanied by loud breathing sounds over four loudspeakers ... Suddenly, mushy shapes pop up from the floor and painters slash at curtains dripping with action. A wall of trees tied with colored rags advances on the crowd, scattering everybody, forcing them to leave.[20]

Okay, it was the 1960s. Anticipating the 1960s, Jean-Jacques Rousseau imagined spectacles sponsored by the French revolutionary authorities. "What will be the subjects of these entertainments? What will be shown in them?" he asked. "Nothing, if you like ... let the audience be their own play; make them actors themselves, each seeing himself and loving himself in the other so that they all come closer together."[21] Events such as these sought to dispense with the artist and elevate the spectator to performer.

Participants in Happenings aren't performers like Olivier and Ma, but they do bring out an ingredient of the performer's role. Performing involves having an idea of the work and performing to achieve that idea, so that a performed work isn't identical to the performers and what they do. In a Happening, the work is just the Happeners and what they do, and what they do doesn't include anything like generating a display from knowledge of a work. Nevertheless, Happeners and performers are, each in their own way, objects of audience attention. When we listen to Aretha Franklin doing "Chain of Fools," we hear her singing and we appreciate the song by hearing

her singing. Likewise, when we watch Kaprow doing his Happening, we see him Happen away, and we see the Happening by seeing him Happen. What Happeners do is make up the work as they go, and the audience attends to that. What performers do is intentionally generate a display based on knowledge of the work, and the audience attends to that too.

Are any of the user's activities done for an art-appreciative audience? Do audiences attend to what users do, where part of what users do is marked for the attention of their audience? (Remember, the user and the audience are roles, so they can be occupied by one and the same person.)

You walk into *Kodama* and it echoes your voice back at you. You've generated a display of *Kodama*. You haven't performed it because you don't generate the display by using knowledge of what features the display must have. On the contrary, you may know nothing about the work except what you learn by interacting with it. But just as performances include performers, the display you've just generated includes you, through a bit of voice capture. You try to understand it partly by considering the effects of your actions.

Consider how different this is from using a playback mechanism like a CD player. You slip the CD into the player and push the play button to hear "Chain of Fools." Playback isn't performance. First, pushing the play button plays the song in a way that doesn't require that you know the song. Even if you do know the song, that's not why it sounds as it does. Second, no audience appreciates "Chain of Fools" by attending to your pushing play (you're as anonymous as a movie projectionist). It would be silly for someone to say they only really got "Chain of Fools" once they heard the way you pushed play.

Some things we do with computers are like playback – we use buttons and menus to control text, music, and video streams. (Unfortunately, sometimes these actions are touted as "interactive."[22]) Interacting with computer art isn't akin to playback. What's missing is an ingredient that true interaction shares with performance and also with Happenings. The user's actions are part of the display that she generates.

Putting this all together, we can list the activities that go into playing the role of computer art user:

> a person plays the role of user in generating a display of a work only if he or she (1) generates the display, (2) exploring the work, so that (3) an audience attends to the work partly by attending to his or her doing (1) and (2).

Figure 5.4 Screenshot of Camille Utterback and Romy Archituv, *Text Rain*, 1999

Clause (2) acknowledges the idea that users generate displays by taking advantage of computational processes rather than knowledge. Clause (3) brings out that the activities of the user are done for the attention of an art-appreciative audience. Such an audience appreciates the work partly by attending to how users explore works by generating displays of them. Quite often the roles of audience and user are played by the same person, who attends to the work partly by attending to herself.

Acute observers of the new art form acknowledge the point. Bolter and Gromala beautifully describe Camille Utterback's *Text Rain* as incorporating its users into its displays (fig. 5.4). A large screen represents letters of the alphabet falling like rain. As the user approaches, her silhouette is captured and projected onto the screen, and the falling letters run off her projected image – unless they're redirected, channeled, or caught in a cupped hand. Bolter and Gromala observe that "the visitor immediately discovers [that] she herself becomes the show." It's "as much an expression of its viewers as of its creators ... [it] is about the process of its own making."[23]

More than a decade ago, David Rokeby saw the potential of this feature of computer art, comparing computer art works to "portraits, reflecting back aspects of the interactors." For this reason, they afford self-knowledge: "to the degree that the technology transforms our image in the act of self-reflection it provides us with a sense of the relation between this self and the experienced world."[24]

This journey through the ontology of computer art and the theory of the user sprang from a challenge laid down at the end of chapter 3 – to show that computer art, as defined by CAF, is indeed an appreciative art kind. We appreciate works of computer art primarily by generating displays of them, understanding that these displays vary a great deal, and that the work itself is to be appreciated through this variety. We also understand that our own actions generate these displays, so that we ourselves become objects of attention. Needless to say, we rarely put any of this explicitly; we may be stumped if asked to define a computational process or a user. That's neither here nor there, for our understanding is implicit in the way we engage with works like *Project X*, *Telegarden*, *Golden Calf*, *Kodama*, and *Boundary Functions*. We normally do appreciate works like these by comparison with each other, for their computer-based interactivity. Computer art is therefore an appreciative art kind.