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Philipps Universität Marburg

Digital Literature: Interview with Noah Wardrip-Fruin

By Roberto Simanowski

No. 32 – 2004

Abstract

Noah Wardrip-Fruin is author and scholar of digital literature. He has edited two anthologies, one of new essays and the other of classic texts on new media: *The New Media Reader* (with Nick Montfort; MIT Press 2003) and *First Person: New Media as Story, Performance, and Game* (with Pat Harrigan; MIT Press 2004) (review). As an author of digital literature Noah Wardrip-Fruin has become well known for *Gray Matters* (together with Chris Spain, Kirstin Allio, and Michael Crumpton), a fiction embedded in images of a human body, and *The Impermanence Agent* (together with Adam Chapman, Brion Moss, and Duane Whitehurst). Both works were part of the Guggenheim Museum New York's 2001 "Brave New Word" program. More recent works of digital literature include *Talking Cure* and *Screen*. Noah Wardrip-Fruin is Traveling Scholar at Brown University. Roberto Simanowski talked with him about disappearing, instrumental, fixed, and responsive text - about text-games, word pictures, critical technical practices, and the future of digital literature.

1. Agent

RS: In 1999 - together with Adam Chapman, Brion Moss, and Duane Whitehurst - you launched *The Impermanence Agent*, a project that tells a story, monitors the user's web browsing, and uses browsed materials to customize its story out of existence. The first thing that comes to mind encountering this project is surveillance. What is not apparent when browsing the web, here we cannot but realize: everything one does online can be monitored. However, as you and Brion Moss lay out in an essay on the *Agent* its point is not only that we are observed by new technology, but also that we use this technology as a means to observe the Internet. The keyword is customization or, as another more figurative term for it goes, the Daily Me. Could you please tell us a little about this customization and how the Agent renders it?

NWF: Yes, Walter Bender's vision of the *Daily Me* - the idea of hyper-personalized news - is a commonly-referenced formulation of customized network information. There are a couple quick points to make there. First, what would hyper-personalized news look like for most people in the U.S.? How much news would there be about Africa? About the African AIDS crisis? How much about celebrities - that is, about other products of the copyright industries? Which brings us to the second point. How different would this be from what we have now? It made a big impression on me, running across a copy of *Newsweek* the week that Hong Kong returned to China and the week after Mother Theresa died. The cover story was the release of the movie *Men in Black*.

The *Agent* began as a customization project of a different sort. On the one hand, it parodies customization. Browsing any website is interpreted as an expression of interest in that site's contents - and so it can only improve the *Agent*'s story, from the individual reader's point of view, to remove portions of the text I wrote and the images we selected and replace them with elements drawn from browsed sites. Right? On the other hand, the *Agent*'s story, and its line-by-line text, were created and designed for this process, for this textual alteration. It's not simple degradation, it's also a type of performance.

RS: The project aims to "customize" the original text in a way that causes it to, in the end, make no sense anymore. If one thinks that the function of the original text only to exhibit this increasing deformation, one would assume it does not matter which text is actually used in the first place. The story itself then seems to be more an extra artifact, a piece of literature used within a piece of digital art. However, you're saying that this is an incomplete picture. I understand that the original text is about recomposing the picture of a grandmother, through documents, while the Agent is about decomposing a story. What is the deeper connection between the text and the performance of which it is a part?

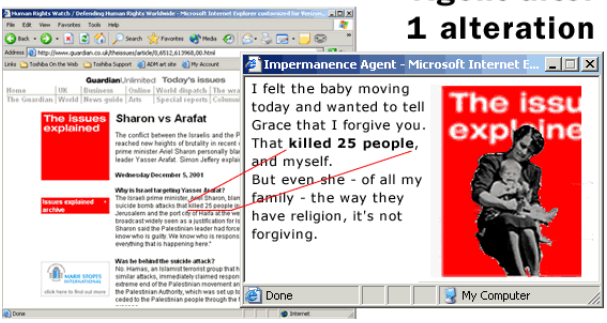
NWF: Proceeding from the standard conception of an "interactive story system" the connection is not very deep. You could replace the text with a different text, and the system would still function. But the text and the system were created together, and revised to function with each other, in ways that this view can't account for. That's why I prefer what Jill Walker has said about the Agent. She says that the workings of the Agent are the discourse, not the story. Just as you could replace the text of *Lear* with a shopping list - but keep sixteenth century costumes, staging, acting style, and so on - you could also do the same with the *Agent*. It's clear why you wouldn't want to do that with *King Lear*, and perhaps not as clear with the *Agent*. But she argues, and I would agree, that this is largely due to the fact that the *Agent*'s genre is a less-familiar one.

Of course, saying this opens the question, "What is the *Agent*'s genre?" I often think of the *Agent* in the performative terms we've been using in this conversation. But if

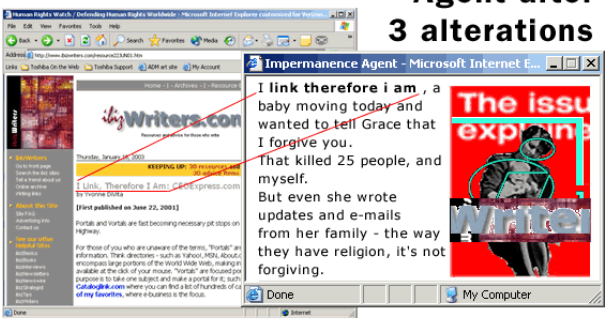
it is a performance it's of an unusual sort. We didn't design it for a short period of sustained attention. Rather, we designed the *Agent* window to be a small addition to the daily information environment - one that could be located in a corner of the screen over weeks of web browsing. We designed it for peripheral attention over a relatively long period, with interspersed short periods of more direct attention (perhaps triggered by moments of surprise at seeing particularly recognizable elements of prior web browsing recontextualized). In this way the *Agent* is more like an installation in the information work space, like a sculpture might occupy another kind of space.

Agent before alteration

Agent after 1 alteration



Agent after 3 alterations



RS: John Cage - who experimented with aleatoric art and interactive installations in the 60s - claimed thereby to bring down the artist from the pedestal so that he is no more extraordinary than the audience. Roy Ascott argued similarly. In his concept of Behaviourist Art the artist, the artifact, and the spectator are all involved in a more behavioural context and the artist is primarily motivated to initiate communication rather than to communicate specific content. In the case under discussion it is obvious that the authors of such clever pieces continue to be more extraordinary than the audience, if only because of the fact that they came up with the idea and knew how to program it. How do you see the relationship between you, your artifact, and your audience?

NWF: One thing that the *Agent* does is offer commentary. Sometimes this is very specific, a reaction to the moment - such as helping you through the Kulber-Ross stages of grief as 404 errors are encountered during your browsing. But other commentary is more general, such as selections from Dogen's *Genjokoan*. And from this you can see that some of our influences, when we were creating the *Agent*, were the same as Cage's. On the other hand, I don't think that creating a piece of aleatoric art like the *Agent* is very different, for me, than the process of having this conversation with you. My individuality (which would be the basis of any thought of individual genius) is an illusion in either case. Things that preceded me, and that will continue when something recognizable as me is gone, are at work in either case.

That said, the experience of the *Agent* probably foregrounds such concepts for the audience more than other sorts of projects I might undertake. The audience experiences a system that remains consistent, but the contents within it are evanescent. Even alterations aren't preserved. The Agent can alter the same part of a text over and over, overwriting itself and erasing the pieces from your browsing you may have most enjoyed seeing reflected.

Or, that's how audiences once experienced the *Agent*. It's important to note that the Agent was created to engage with a very specific moment in the network's history. One element of the Agent is the code, and that we can update. But another element of the *Agent* is the proxy server through which people browse. Early in the project this was an open proxy, and we kept track of individual browsers via cookies. But the larger network changed around us, and the *Agent*'s proxy began to be used for undertaking unfriendly online activities anonymously. Specifically, Brion tells me that people were using it for proxy attacks on CGI servers running FormMail. Brion, who has worked as a system administrator, certainly wasn't going to allow our project to be used that way. So we changed over to an IP-based means of keeping track of readers, and only allowed use of the proxy by approved IPs. This meant that people on dialup connections, using DHCP, or in other situations with dynamically-assigned IP addresses couldn't use the project. Over time, of course, the number of machines with fixed IPs that people use for web browsing has become pretty small. But at the same time the network has been changing. When was the last time you

saw an old-fashioned 404 error? So now most people experience the *Agent* through its documentation, or that for *The Agent's Story*. It's a very different relationship with the audience, but it might be the appropriate one for this project at this time.

RS: The activity that caused you to switch to the IP-based mode sounds like a guerilla attack on digital art, which at least managed to influence the way the artwork is presented to the public. It looks like taking hostage of an artwork in an unwelcomed understanding of interactivity or in a kind of inversed logic of readymade: Your piece is used in a different context and thus changed in its appearance and signification. Is the hacker Duchamp's descendant?.

NWF: I wouldn't want to sully the term "hacker" any further by applying it to these people. They're closer to petty vandals. Of course, the question of political action, and its relationship with art, is certainly an active one when we think about the network. Frankly, much of what is narrated, in the art world, as dramatic online political action actually strikes me as pretty mundane. Most "virtual sit-ins" are functionally equivalent to signing a petition. I'm more impressed by the work of people who deserve to own the term hacker, such as the Cult of the Dead Cow or the folks behind Freenet. They don't peddle their work as art, so we don't discuss it as much in this community, but they do use code to create tools to enable political communication and action. So far, of course, the most effective uses of the network for political work this century have been in organizing anti-globalization and anti-war and pro-choice activities that take place in the flesh.

RS: Building on what you said a few minutes ago, we could say that another attack on your work is time itself, i.e. the changes in technology, which result in most of your audience not being able to see the *Agent* any more.

NWF: In its original version the *Agent* was coded for Netscape 4. When we went to the version 5 browsers things started to break. And we made a decision we would recode the *Agent* for a standards-based HTML, even though the code we decided to use wasn't very well supported at that time. But we thought that the move would help it last. And now, with Mozilla and Netscape 6 and Safari and other browsers that actually do implement web standards, the Agent's client-side code works well. But the network has changed - we've had to change the proxy, 404 errors aren't that common any more, even image formats are changing (the *Agent* works with GIF and JPEG, but not Flash or PNG or SVG or whatever else is coming). But I think it's okay if the project itself is impermanent. In some ways it was an engagement with a particular point in a web's history - and that engagement with a particular moment is part of what I think we're about in electronic writing.

You can't write with the idea that your letters are going to be found in a trunk after you die and you are going to be recognized for the great writer everyone knew you were, or no one knew you were, but you knew you were. You really have to write for that particular moment because - well, maybe it's like writing for the theater. You

make a production and then that production goes away. And maybe there's some documentation of that production but that piece is not going to exist again. A group of people has to decide to produce it again for whatever the technological platform is at that moment. And it might be vastly different. It might be as different as, you know, the gospel production of *Oedipus at Colonus*.

One thing that's unfortunate about a lot of electronic writing, however, is that it's lost even faster than it needs to be. And part of this is due to the fact that writers aren't used to thinking about their materials in the same way people like visual artists are. Nick Montfort and I have been involved in the Electronic Literature Organization's project for Preservation, Archiving, and Dissemination - and out of that work we've recently written a pamphlet, aimed at authors who work in digital media, that will hopefully help address this problem. The pamphlet is called Acid-Free Bits and it was published in June.

2. Screen

Screen (Image by Josh Carroll)

RS: Lets move on to a more recent piece of yours, *Screen*, which is both very different from and quite similar to the *Agent*. It is different because it does not

operate in the world of the everyday Internet but in the more exclusive world of the three-dimensional *Cave*. It is similar because memory is an important theme in it as well. What is the *Cave*? How does *Screen* work?

NWF: The Cave is a type of virtual reality display. It's the size of a room, rather than being something worn like a helmet. There are a number of them around the world, but they're certainly less common than web browsers.

At Brown our Cave has three walls and a floor. Each of these is actually a projection surface. Each surface has two alternating streams of images projected on it: 1, 2, 1, 2, 1, 2. You wear glasses when you are in the Cave, and the lenses of these glasses are liquid crystal shutters. Your left and right eye are obscured alternately - right, left, right, left - at exactly the same rate that the images are projected alternately on the walls. This could be used to show you two different movies on the walls, one for your left eye and one for your right eye. Instead it's used to show you stereo-separated views of a computer-generated scene. Your position is tracked, and the scene is constantly recalculated to be correct for where you are in it - so you can walk up to things, squat under them, move around them, and the images projected on the wall always show your eyes the correct images to create an illusion of virtual objects and spaces.

The Cave is usually used for the normal sorts of VR art that you see with head mounted displays. *Screen*, on the other hand, is specific to the Cave. It's about standing in a box. And while the Cave is usually used for impressive graphics, what you see while in the box, in Screen, is text. Usually Cave pieces are focused on exploration, but *Screen* is based on time and interaction. And yes, while it's different from most Cave pieces, *Screen* is similar to the *Agent*, in that it explores memory through the specifics of a digital media technology. *Screen* is talking about memory, dream, and desire as virtual experiences and is using virtual reality to reflect on them. It also defamiliarizes interaction modes that we know from previous virtual reality experiences and computer games.

The experience begins with an introductory text, written by Bob Coover. I believe, incidentally, that *Screen* is the first piece of electronic fiction to contain text by Bob, though he's been a high-profile supporter of such work for many years. After the introduction, three memory texts are displayed - each the size of one of the Cave walls, and projected onto one of the walls. A voiceover reads each text as it appears. The wall texts are very page-like in appearance, and the voiceovers enforce a linear experience of them, even if an audience member's eyes may be glancing around the space. At the end of this the audience is standing in a box of words. Then one of the words peels loose. And then another. And another. They flock around each other and the reader. And, just as we track the position of the reader's head so that we can generate appropriate images for the walls, we also track one of the reader's hands, so that the reader can reach out and strike the loose words she sees in front

of her. Struck words return to the walls, sometimes to the place they came from, sometimes to a space left open by another word. If no space is large enough, or if the striking motion is particularly strong, words can break apart. The word-by-word reading of peeling and striking, and the reading of the word flocks, creates new experiences of the same text - and changes the once normal, stable, page-like wall texts into progressively-altered collages. The pace of peeling speeds up over the time of the piece, and when too many words are off the wall the piece ends (with the remaining words coming loose, swirling around the reader, and then collapsing). So the experience lasts longer the more actively words are struck and sent back to the walls. But this also progressively alters the original wall texts, so the more active reader also deforms the memory texts to a greater extent.

Screen (Image by Josh Carroll)

RS: Is the person who goes into the Cave to see *Screen* told anything?

NWF: My preference is to send people in there cold. People tend to have different experiences depending on how familiar they are with the Cave. For those who have "virtual reality" expectations, *Screen* can be baffling. We actually had to do quite a bit of tweaking to position the letters in 3D space so that they appear to be exactly on the walls of the Cave - but most people with VR experience don't think of this. They think, "This isn't using the medium. What's going on?" One person actually walked out of the Cave and sat on a chair to watch the piece. You should have seen him jump up and run back in when the first word peeled from the wall!

And, even though it's not using 3D for flying over a virtual landscape, I find I like *Screen* as a use of 3D better than many VR artworks. Because of the constant recalculations, VR pushes 3D hardware to its limits. A lot of VR pieces still look kind of pixilated and crunchy, like computer graphics of an earlier generation, because that's all the hardware can manage. But even the old computer in Brown's Cave has plenty of horsepower to make Screen's text look great.

RS: *Screen* strikes me as an example of concrete poetry engaging the features of digital media. While in concrete poetry in print media the message is a combination of the linguistic level (the text as such) and the visual level (the way the text is presented on the page), here two additional levels are in play: time and interaction. In Screen the link between text and interaction is obvious: the text talks about remembrance and losing words. In the interaction the user is supposed to push back words peeling off the wall in order to keep them in the realm of memory. As you mentioned in a conference paper *Screen* could be called an "instrumental text" or text-game. You state that the type of engagement authors hope to produce with instrumental texts may be more musical than game-like. However, the feeling of being in a game is exactly what *Screen* creates. You don't want to read the words coming up to you - you want to win. You are trying to keep all those words from getting lost. You are trying to keep them on the wall, which represents our memory or rather: the *external* archive, *external* storage. The aim of our physical effort is to return the words to this archive. The more effectively we do this the less time we find to read the words we are saving, which means we don't refresh the words in our internal archive. One feels reminded of king Thamus in Platon's *Phaidros*-Dialog rejecting the script offered by the Egyptian God Theuth with the explanation the chance to store knowledge as script will ruin memory. Could this be the deeper meaning of the way you have text and reader interact: to stress the contradiction between keeping words stored in the box (or on the wall) and keeping them alive in our mind?

NWF: I view instrumental texts as a subset of what I call "playable media." Commercial computer games are also a subset of this category. It can be divided up a number of ways, but I think what I'm interested in requires keeping in mind the broad area. Engaging the playable means we're not just interested in the media analogue of football, but also in the analogue of hackey-sack. *Screen* lacks a number of the formal elements that many definitions of "game" require. But, yes, it is deliberately engaging with game-like play mechanics. And it can produce a kind of attention that is very much like playing a game like *Breakout*. One young visitor, I think he was seven years old, looked at the scatter of words at the end and asked, "Is that my score?"

But, of course, it's not a score, as most of our adult visitors realize. The experience of *Screen*, we hope, is one of oscillation. The words are at times objects, and act like graphical objects, and we concentrate on playing them that way. But sometimes the

words are words, and we read them as clusters of text - seeing them overlap, hearing them spoken. And sometimes the words are part of a memory, a fiction, and we remember the context in which we heard a word before, we see how the texts are deforming through the play process, deforming more the better we are as players.

RS: Let me press you a little on this notion of oscillation. As I understand it, in *Screen*, if a word has nowhere to go back to, it will try to break apart into smaller pieces so it can fit into what spaces are available. And also if you swing particularly forcefully as you hit a word, the word will often break apart. You might say, "That's just how the program works," which would not require or allow a quest for deeper meaning. If the effect is intended, however, one is legitimated in conducting, and even obliged to conduct, such quest. If "it's just the program," how do you deal with the fact that such noticeable effects of your piece are not indications of semiotic concerns but rather of the material's uncontrollability? If the effect is intentional, what is the connection between applying too much force and breaking apart supposed to mean; and why do words break apart as well if one does not push them too hard? Is this the oscillation of which you spoke? Do you think it succeeds in this case?

NWF: Well, to put your mind at ease, everything is intentional. There's no support built into the Cave for words that break apart, or things that break apart when there's not room for them, or when things hit them. The whole logic of the piece is something constructed by us, within an environment that only really has "built in" to it things like support for polygons, images mapped onto them, and movement of them and the user through space. So, for example, *Screen* is built out of a bunch of relatively-flat 3D rectangles. Each of these has the image of a letter mapped onto it, and this process defines the rest of the rectangle as transparent - so that one letter can be seen behind another without the rest of the rectangle obscuring the view. Each of the walls of text is like a brick wall, constructed out of these rectangular polygons with letters mapped onto them. And then we tell them to tear loose and fly as groups, as words, and we tell those groups when to break apart. Our program monitors whether they have a place to go when they're hit, and how swiftly the arm was moving when they were hit, and decides what to do.

As for oscillation, I don't think of these two behaviors as occupying different layers of the oscillation. They're both part of the layer on which the words are like objects. The "language of memory" becomes a concrete metaphor - as I suppose it is in any alphabetic fiction. And in a world in which your body can touch text, in a world in which flat expanses of text can become unstable, in which words flip and whirl and flock, breaking in these ways and not others is part of the physics of the alternate world we've created. The fact that words do break, and move to new locations and form neologisms on the walls, connects back to the themes of memory - but I think of the way this happens as occupying the text-as-object layer.

And that brings us to the next question we need to ask ourselves. Why is it, in systems in which we play with words, that play is so often graphical in its logic? *Screen*'s logic is collision detection. *Text Rain*'s is edge detection. And, of course, it goes to extremes - *Arteroids* is a mapping of words where pictures would be in Asteroids, it's not just a graphical logic, but a well known graphical game with words inserted. And all this leads me to wonder, if we're going to play with words, aren't there also linguistic logics that would be worth exploring as the basis for play? I ask this rhetorical question, of course, because it's one of the things I've been thinking about quite a bit recently. Brion Moss, David Durand, Elaine Froehlich, and I are working on a project - commissioned by Turbulence - that creates textual play through word-chaining logic that goes back to Claude Shannon. In a play on the terminology you brought up earlier, we think of these as textual instruments, rather than instrumental texts.

RS: Comparing *Screen* and the *Agent* I am inclined to ask a more general and a little provocative question. The discussion of the *Daily Me*, surveillance, and use of technology makes the Agent to a good example of *critical technical practice* - as you call it in your essay with Brion Moss, The Impermanence Agent: Project and Context. *Screen*, on the other hand, does not seem to aim for such practice. I don't see how it aims to teach and enlighten its audience, its users, about technology and what impact technology may have on our lives. Rather it shows what cool stuff one can do in three-dimensional environments. I am not saying every piece has to have a critical message. I am just curious to hear your answer.

NWF: Well, I think Brion and I may not have been as clear as we should have been in that essay. There are two senses of "critical" at play. One of them, quite clearly, is sense in which the *Agent* project operates as a critique of certain visions of agents and the web. But that's not really the "critical technical practice." The way in which the *Agent* is CTP is really only made explicit at the end of the essay.

You see, CTP, as I understand it, was originally a way of looking at technical practices critically in order to find unexamined assumptions in them that were leading to technical impasses. So, for example, the person who coined the term is Phil Agre. He was an AI researcher, and he looked at the impasse - he looked at how AI appeared to be stuck. And then he looked at how AI formulated what it meant to be intelligent, to be an actor in the world - the whole "brain in a vat making plans" approach. And he realized that his experience, and the thinking of others, provided ways to expose the limitations of that view, and then this could lead to new technical approaches that were not previously visible. And then the idea was that the process would keep going. The new formulation, the new methods, would be exposed to the same rigorous critique. It would be ongoing.

The *Agent* is CTP in this sense within the realm of computational story systems. Most of the work in interactive story systems, I think, is stuck. No one thinks it

produces work that is interesting on a literary level. And this is after many years of work. But here's the approach: figure out a way to understand plot, create a system that fiddles with plot, then output a story structure at some level of detail. Then, sometimes that structure is actually used to generate language, to generate fiction - but in many cases it's black-boxed. Natural language generation is someone else's research problem.

The *Agent* proceeds, instead, from the assumption that permutation at the level of language is where our effort should be focused. It looks at the idea of computational story systems from the perspective of the literary writing community, within which the language permutations of Burroughs are generally considered more interesting than the plot permutations of *Choose Your Own Adventure*.

I think that *Screen* might be locatable within the territory of critical technical practices in this way. It looks at how the Cave is normally used, and the way that's been (very minimally) applied to fiction, and says, "that approach is not going to be able to get much beyond where it is now." One set of technical practices is disposed of, and a new one is tried, motivated again by the assumptions of the literary writing community.

Now the next step, of course, would be a critical examination of the methods of the *Agent* and of *Screen*, which is perhaps part of what we're doing right here.

3. Talking Cure

RS: A third piece I would like to discuss is *Talking Cure*. This work does not need an expansive environment like the Cave, though it doesn't work online either. It is a kind of performance in which the text is read and changes its appearance according to the reader's behavior. What is the text about? What happens to it in the performance?

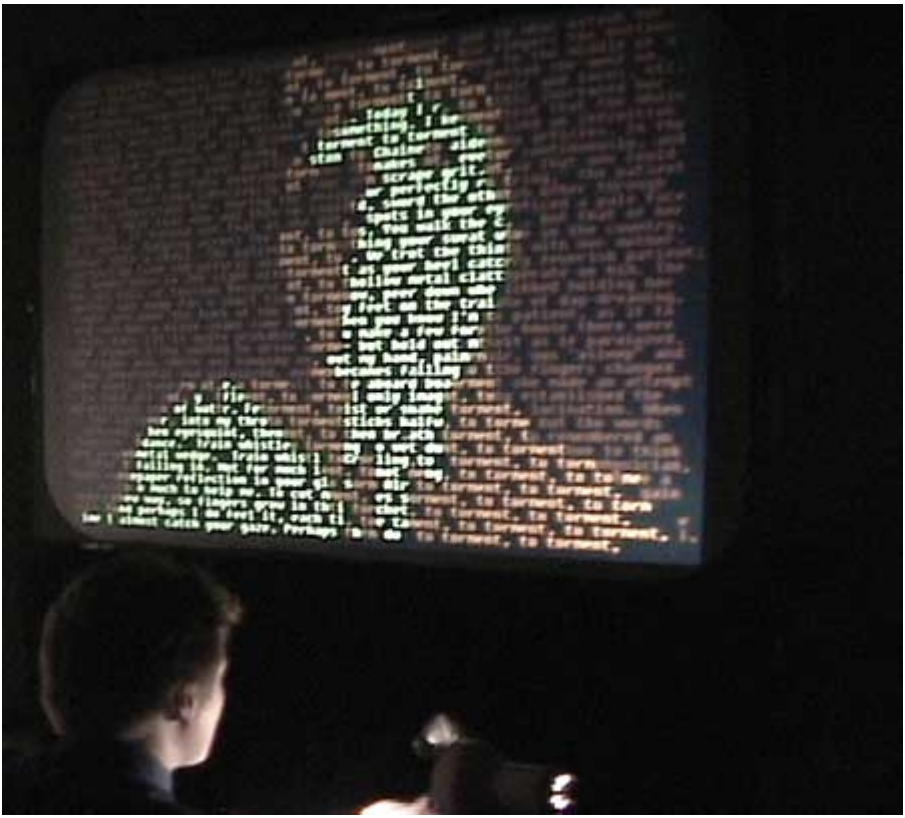
NWF: Well, *Talking Cure* began life as an installation piece. But in the last year I've also begun to use part of the installation, the visual part, in combination with the text in order to give readings or performances of the piece.

The piece began when Diane Gromala and I invited Camille Utterback to give a talk at SIGGRAPH, and Camille showed a technique of hers called Written Forms. What this technique creates is an image made up of a mixture of layers of text of different shades. It starts with a live video image. Then this image is reduced to a limited number of shades - brighter and darker areas. When we use this technique for *Talking Cure* we reduce the image to three shades: dark, medium, and light. There are also three texts, which are each the size of the screen, and which are colored

dark, medium, and light. The video image's resolution is reduced until each pixel is the size of a letter, and then the shade of that pixel (dark, medium, or light) is used to select which text's letter to show in that location.

Talking Cure

In *Talking Cure* we use this to create a text mirror. There's a chair, and a screen that shows the dark text. When you sit in the chair a light shines on your face, and your features interrupt the dark text with other texts, and you see yourself made up of these texts. When I saw this technique at SIGGRAPH I immediately started talking with Camille about the possibility of collaboration, and about the idea of working with one of the foundational case studies of psychoanalysis, one of the quite compelling sites for "word pictures" in our culture. We chose the case of Anna O - the patient who gave Joseph Breuer the term "talking cure," which was famously passed on to Freud. And working with Clilly Castiglia and Nathan Wardrip-Fruin (my brother) we extended the piece into the auditory, into the realm of talking.



Reader with *Talking Cure*

As I mentioned, in the installation the reader enters a space with a projection surface at one end and a high-backed chair, facing it, at another. In front of the chair are a video camera and microphone. The video camera's image of the person in the chair is displayed, as text, on the screen. In the word picture, one of the layers is from Breuer's case study of Anna O. This text is the darkest, and so is the only layer visible if no one is sitting in the chair (first text layer - version from the 2002 installation). Another layer of text consists of the words "to torment" repeated - one of the few direct quotations attributed to Anna in the case study. The third layer of text, which I wrote, reworks Anna's snake hallucinations through the story of the Gorgon Medusa, reconfiguring the analytic gaze (third text layer - version from the 2002 installation). Speaking into the microphone triggers a speech-to-text engine that replaces Anna's words - the middle layer - with what it understands, and often misunderstands, the participant to have said. What is said into the microphone is also recorded, and becomes part of a sound environment that includes recordings

of Breuer's words, Anna's words, our words, and all that has been spoken over the length of the installation. Other people in the space observe the person in the chair through word pictures on the screen. We've seen readers move their bodies at first to create visual effects, and then to achieve textual ones, creating new reading experiences for themselves and others in the room.

When I do Talking Cure as part of a performance I cycle through the layers of text, reading from them alternately, while a video camera feeds a visual of what I'm doing into Camille's system for producing the word pictures. So I speak one mixture, while another, shifting, mixture appears on screen.

RS: The title of Talking Cure seems to take on a new meaning when the performance simulates/ imitates a psychoanalytic sitting, in which the talking of the text alters (cures) the text while generating a picture out of text. Whose shoes is the person in the chair put in: Anna's, the therapist's, or the reader's of the Anna O case?

NWF: I think of the audience member as reading a word picture of their own face, made up largely of the words of others. So, in this way they are both Anna and the reader of the case, but primarily Anna. Camille and I have been talking about what we'd like to change for the next time the piece is shown, and one of the changes we're discussing makes the positioning as Anna, the placing of the reader in Anna's position, more explicit. We're talking about supplying prompts for the reader, in the form of questions directed at Anna, so that the speaking into the microphone becomes a type of role-playing. People can open up, and say some quite interesting things about themselves, when given an invitation to role-play.

4. The future of digital literature and its curricula

RS: Considering *Agent*, *Screen*, and *Talking Cure* it strikes me that your works are installations, or performances, in which text is not reduced to "graphical objects" as you put it, stripped of linguistic function (as it is the case in works such as Utterback's piece with Romy Achituv, *Text Rain*, David Rokeby's *inter/face*, or Untitled by Squid Soup). Your pieces treat text as text, which the reader is still able to read, and supposed to read, and which only in a second step becomes something connected to and signified within its specific environment. Whether the text is overwritten as in Agent or peels from the wall as in *Screen*, text turns from text representing a story into text representing an idea. One may even say the way the text gets lost as a story is part of the overall story your piece aims to convey. I welcome this as a kind of 'conservative' version within an avantgarde art form, giving meaning and future to the term digital *literature* as in contrast to both *traditional* literature and digital *art*. How do you situate your work and where do you

want to go with your next projects? Where do you see digital literature/art as such going?

NWF: I think for Camille and Romy the particular text that's in *Text Rain* is important. They used lines of a poem, and negotiated for the copyright clearance. They wouldn't have done that if it didn't matter what text they used. That said, I think it's true that many in the electronic art community view *Text Rain* as interesting in its function as an interface, and for this audience any text could be employed. One question I have is, "Why is that?" People in the prints-on-walls art community don't think that you could arbitrarily substitute text in a Barbara Kruger piece. People in the electronic writing community don't think you could arbitrarily substitute text in a John Cayley piece. But text, for some reason, doesn't seem to be a recognized artistic medium in the electronic art world. I like to tell the story about the time I gave a reading and talk in Norway as part of a speaker series for electronic artists. Afterwards one of the audience members asked me, "Where did the text come from, for those pieces you showed?" She was shocked to hear I'd written it. I don't think she'd have asked that about visuals, or music, or interaction design. It continues to puzzle me.

But to return to your question, yes, text is central for me. I came to this work through a fascination with possibilities of words, and with the sense that undifferentiated flow down a page wasn't the right medium for the text I wanted to write. In my projects there's text and then there are processes, and the processes enact something in connection with the actions of the reader, at the time of reading, that is related to the themes of the text, but not the same. Before I came to electronic writing I was trying to imagine ways of creating such processes on paper - but then the processes have to be *fait accompli*, they must have already happened before the reader arrives. Maybe I will return to some of that work at some point, but for now I think it's essential that the time of reading and the time of the processes overlap, and it's computational processes that make this possible.

As for the future of this sort of work - well, I hate to speculate for the field as a whole, but I can tell you what interests me most. It is, perhaps unsurprisingly, work that explores the malleability of language. Much of electronic visual art creates responsive images. Much of electronic music creates responsive instruments and compositions. But much of electronic writing, to me, feels like work with text that is nearly as fixed as it is on the page. Now, don't get me wrong, I think there is very interesting work to be done in this area. I'm currently reading Norman Klein's *Bleeding Through* - which seems utterly fixed, I can't even tell that it maintains state in any way from one reading to the next, there's not even a bookmark function - and I'm enjoying it thoroughly. I don't discourage my students from doing this kind of fixed-text, exploration-based work. But my hope for our future is that we will explore more of the possibilities for text that responds, on a textual level, to things that happen at the time of reading, such as actions on the part of the reader.

On a rather different note, to return to the idea of role-playing, I've also been talking recently with Pat Harrigan - my coeditor for *First Person* - about the fact that computer-based role-playing games don't capture much of what we most enjoy about tabletop role-playing games. This is true both for the single-player adventure games on computers and the massively-multiplayer games. It's the pre-play construction, as much as the play itself, that I enjoy about tabletop RPG systems - the thinking about the possibilities created by those systems and constructing fictional elements within them. Perhaps this is analogous to what Will Wright talks about, when he says that he came to his type of design through the realization that the terrain editor for his last traditional, pre-Sim game - *Raid on Bungeling Bay* - was more interesting than the combat-oriented play that took place over the terrain. I think there's a future in making that more construction-oriented element of RPGs something the computer provides an environment for playing in a new way. And, of course, I'm particularly interested in how this might play out in a way in which language is central. Perhaps it goes without saying, but it was the interaction of written and spoken language with the mechanics of a system that first drew me into tabletop RPGs when I was eight and a friend showed me a copy the *Dungeons and Dragons* rules.

RS: Besides your role as author of digital literature you are also a committed scholar and facilitator of digital literature and aesthetics. You have edited two books on new media; you have been involved in classes on digital writing and design at Brown and NYU and the University of Baltimore. If you were to develop a curriculum on digital aesthetics what would be your criteria and principles?

NWF: I view the field of new media, or digital media, as having three elements. First, there is the development of media tools that use computation to enable interaction and display. Second, there's the development of media artifacts that employ (and inspire) these tools. Third, there's critical and historical reflection on these developments.

When we educate our students, they need to be educated in all three areas. And the thesis work of our students should include technical work, media authorship, and critical and historical context and inquiry. If a student only wants to do one or two of these things, there are other places for them to work - Computer Science programs, Media Studies programs, and so on. They don't need to be in a new media program.

I say this pretty regularly, and it seems to make people upset. The first kind of upset seems to come from faculty who teach in, or are trying to start, new media programs. They say, "I don't know about all three of those areas. Are you saying I'm not qualified?" My answer is, "Not at all." Adrianne Wortzel and I taught a writing and new media course in NYU's graduate film school. It seemed clear to me that someone could be a very effective faculty member in a program like that by knowing

a lot about lighting and almost nothing about editing or writing. But the students needed to know about all three of those things, and more.

Another common objection I hear is that there's no good model for teaching computer science to students in digital media programs. There's no "CS for New Media" the way we have statistics classes for social scientists (rather than for mathematicians). This doesn't mean using examples from digital media to motivate students to learn CS - there's already good work in this area at Georgia Tech, CMU, and Brown. It also doesn't mean teaching digital artists procedural thinking, while not introducing the way that the digital media field is built upon research results and concepts from computer science - there's already good work of this sort coming from MIT and other places. Rather, it means introducing students who are already, in some sense, experts in digital media to the discipline of computer science. It means introducing computer science as it relates to digital media, which means emphasizing different things, introducing concepts in a different order, and having a lot more historical and critical material than in a normal Intro to CS course. I've been talking with a number of people about the best way to design and teach such a course - particularly Michael Mateas, who already offers a course with some of these features through the LCC program at Georgia Tech. Hopefully you'll hear more from us on this issue before long.

In the meantime, *The New Media Reader* was an attempt to answer one of the objections I used to hear - that it was too hard to teach students much history and interdisciplinary context. The materials were too scattered, and often out of print, and not all familiar to most teachers in the field. I think we've made some real progress in addressing those issues, and I expect that in a few years we'll have made some real progress in addressing the issues related to computer science as well.

RS: I indeed hope to hear more about the issue of teaching digital aesthetics soon. For now let me say I appreciate the work you have done so far in the area of digital aesthetics and I thank you very much for your thorough answers about it.