

DISSERTATION PROSPECTUS

**THE FRAGMENTED PATIENT:
A Proposal for a Review of
The Shifted Gaze**

by

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Abstract

Argument, method, and justification: The artifacts produced by medical imaging technologies create a data stream that replaces the corporal patient, shifting the physician's focus from the exterior to the interior body and from the whole person to organ systems, anatomy, and physiology. This proposal calls for a study of this shifted focus and examines how we can use methodologies derived from surrealist, literary, and theater theories to address practical issues within the field of radiology. The Texts and Technology program offers a unique platform for analyzing powerful medical technologies and the visual and textual documents that they produce.

In the context of this project, medical imaging represents the culmination of **I**objectivation: the patient falls under the observation of the machine, while the image ultimately serves as an object of observation by the physician. I will use a rhetorical approach to examine artifacts produced by medical imaging technologies, how those artifacts are created in a clinical setting, and how those images are analyzed by experts. I examine the artifacts not as static objects, but rather as part of a complex system of communication between physician and patient that creates new meaning in different contexts, both in whole and in pieces. I will explore these issues within the realm of the humanities and use methodologies developed outside of the medical field – such those based on surrealist, theatre, and literary theories – along with incorporating ideas set forth by scholars from the medical humanities.

Overture

Medical imaging allows physicians to evaluate flesh and bones beneath the skin through radiation, ultrasound, and other technologies. Neurologists and other specialists commonly request a patient's scans and reports before consenting to see the patient. The manila file stuffed with incoherent scribbles of past visits, medications, and test results is being replaced by multimedia documents that may include advanced digital imagery of the patient. This raises questions about the traditional roles of both patient and physician. If the neurologist has the medical records and scans, is the patient necessary at all? Is there a "patient" at all? If we conjure a mental image of the traditional "patient" and see the shivering, gowned person on an exam table, how will the new patient look? Is the computer monitor replacing the patient as the object of a physician's gaze? Is the physician's shifted gaze indicative of a change in culture to that of a mediated or remediated self? Is the digitization of the patient leading as well to a decreasing dependence on the physician and a greater reliance on technologists who understand the tools, along with the artifacts that they create?

The objectivation of the patient through medical imaging certainly makes the patient's corporeal presence less necessary to the diagnosis and treatment of illness and shifts the physician's gaze from the patient's body to a data stream – representations of fragments of the patient on a viewing screen. The technology used to produce the

fragments and identify threats to the body can, in the process, eclipse both the physician and patient in that the technology, along with the artifacts that it produces, becomes the center of attention and shifts our sense of what is real to an image of perceived reality.

The technology offers apparent objectivity in that its physical layer is machinery and its code layer is a numerically based logic system that seems as if it cannot be fooled. It relies on universal truth – numbers as the language of God – and appears not subject to the capriciousness of human nature. The machine seems to have no motive for deceit or capacity for error. We trust it in ways that we cannot trust each other's fickle judgment. Of course, patients still face the concern that the expert radiologist's ability to *see* the truth surpasses the significance of the image's ability to *show* the truth, if the patient's freedom from disease is the goal. Regardless of the risks – both physical effects of the procedures (i.e., exposure to radiation) and of a perceptual errors by a radiologist – the ostensible objectivity of the image makes it appealing to patients and experts alike.

In many ways, medical imaging technologies give the physician a window into the body that shows objective evidence of disease and decreases the physician's reliance on a patient's subjective complaints. Tools that create images of the inner body can provide the physician with more information than the physical patient. While both the patient and physician currently remain necessary at some level, medical technologies make their location, time, and place less relevant and decrease the significance of

physical human interaction. At some point, the machine must analyze the patient and the physician must analyze the machine's analysis, i.e., the data, but we face the possibility that – for better or worse – never the two shall meet.

Literature Review

The medical humanities is an interdisciplinary field that considers how the arts apply to medicine and healthcare. Medicine revolves around examination and manipulation of the living body and its practice produces a body of rhetoric that often takes the form of written and visual documents, such as patient reports, chart notes, radiological scans, and more. Yet, we understand relatively little about how these documents – the mass of rhetoric – affect the individual. Derrida points out that Plato associates writing with the Greek word *pharmakon* or *drug* and that, like rhetoric, “the *pharmakon* ... can seem to cure, but it also can hide disease and even disguise death” (Bell 250). Medical imaging technologies that produce visual reflections of our internal systems, ostensibly do the opposite; they reveal disease and warn us of death's approach.

Identifying cancer is the grail of medical imaging, with cancer signifying death. An MRI scan, for example, can succeed as a warning system, in that it signals tumors and blockages threatening life. Bettyann Holtzmann Kevles discusses the effect of imaging technologies on understanding cancer and cure, pointing out that most computerized imaging tools all served at some point to visualize malignancies. “By the

late 20th century, the notion of ‘seeing’ the seeds of cancer was tightly connected to the possibility of cure or remission,” Kevles states (5). She points to how that imaging tools detect cancers and apparent abnormalities and make the idea of disease something that can be pinpointed and obliterated: if we see death’s approach in the form of a shadow on a film or monitor, we can dispel it indefinitely. This is, of course, a false sense of protection. A CT scan would have failed to reveal the laundry truck that killed Roland Barthes. Even though Susan Sontag faced cancer in the age of medical imaging, she ultimately succumbed to the disease. While it cannot succeed completely, medical imaging technologies might be more completely remediating the human, in that our knowledge of their existence and potential leads us to a fundamentally different understanding of mortality and our control over life. To some extent, medical imaging technologies highlight the ways in which revising the body – through surgery, medication, and interventional radiology – could be as easy as editing an image in Photoshop.

Lisa Cartwright finds that x-rays, along with many other 19th century technological developments such as the motion picture, were instruments geared toward regulation and control of the body. She draws on Foucault’s understanding of the “medical gaze” and how the process of autopsy revealed the body’s interior, but also how the onset of imaging made “sensory perception (including sight) [...] progressively destabilized as a source of anatomical knowledge” (10-11). In autopsy,

the expert could see the disease and the understanding of *disease* as a concept changed to one wherein it became “understood to leave a visible imprint on surface tissue, in a superimposing or mapping process” (11). The autopsy offered pre-x-ray medical practitioners their only realistic view inside the corporeal body. Void of life, the corpse gives us our only arguably ethical, realistic view of the human body from the inside out. There is nothing more corporeal than a corpse. In “Corpsing the Image,” Peter Schwenger discusses how photographing the dead raises questions about the nature of all images. Schwenger describes Barthes’ observations that “with a click of the shutter time is frozen in pastness, and reality becomes image” (395). Stretching this logic, we could argue that a physician peering at a monitor rather than a human body is seeing the past and, according to Barthes (as quoted in Schwenger), death itself. In the end, Schwenger decides that the image “can be said to *corpse*” (413).

If the image can be said to corpse, it has also led us back to the corpse. Seeing the corpse itself, fixed in plastic, is possible through exhibits such as the controversial Body Worlds, a display of corpses chemically treated to prevent decomposition. The plastination and display of the dead offers the ultimate body visualization; the whole body is an artifact—a production of technology that conveys information. Jose Van Dijck points to similarity between the controversial plastination of cadavers with what doctors do to living bodies (i.e., plastic surgery), finding that both signify the reversal of “body and representation” and the “problem of authenticity and copy.” She finds it

disturbing that the body can be manipulated in ways that dehumanize and are blatantly commercial, and believes that this “anatomical art seems to elude ethical judgments”

(62). Body Worlds, according to its Web site, claims:

The primary goal of the BODY WORLDS exhibits is health education. On the one hand, 200 individual specimens are used to compare healthy and diseased organs, i.e., a healthy lung with that of a smoker, to emphasize the importance of a healthy life-style. On the other hand, 25 life-like posed whole-body plastinates illustrate where in our bodies these organs are positioned and what we are: naturally fragile in a mechanized world. (Gunther)

Body Worlds’ proprietors justify its existence first as a means for visually educating its audience and only secondarily as art. While, currently, full body plastination is only done to the dead, it seems to represent a culmination of Cartwright’s proposal that medical visual technologies have led to our desire to map, regulate, and control the human body. With these cadavers, all remnants of a non-medical body – the mind and soul – have left the building and the body turns into a means of conveying information.

* * *

Brain/mind research has driven a great deal of technological development in medical imaging both in identifying mental illness and what constitutes a “normal” brain. As a result of the association between mind and brain, visualization of the brain seems to offer an elusive glimpse into what makes us human. Joseph Dumit describes

how positron emission tomography (PET) scans have transformed cultural views about the mind. Unlike this project, Dumit specifically focuses on images used in research, rather than diagnosis or intervention, and shows how these images are disseminated and interpreted in popular culture. He argues that these scans shape opinions in a variety of contexts, including social views of mental illness. He identifies PET scans as serving many agendas simultaneously. “While representing a single slice of a particular person’s brain blood flow over a short period of time, one scan can also represent the blood flow of a *type of human*, be used to demonstrate the *viability of PET* as a neuroscience technique, and demonstrate the *general significance of basic neuroscience research*,” says Dumit (4). In terms of this project, Dumit establishes what patients have come to expect of medical images and also how the images have transformed cultural ideas about free will and the medicalization of behavior. He stresses the connections between our brain, and consciousness, which are further complicated by the images produced with the PET scan. “The reconfiguration of mental illness as biological through the use of PET scans becomes part of a personal reconfiguration of one’s own category of person,” Dumit states (166). He explains how a person seeking relief from mental illness or chronic pain can feel legitimized by a PET scan in that it offers a method of exploration and hope for relief. The medical images demystify conditions that often stigmatize patients as a result of connotations associated with the condition.

Susan Sontag argues that illness has symbolic meaning, specifically in the cases of cancer and tuberculosis, and the best way to manage illness is to avoid such metaphorical thinking. In her later work, Sontag extends the problem with metaphors to the disease of AIDS. She says that tuberculosis is considered a romantic disease, whereas society associates cancer with “the wages of oppression” (21) and “the repression of violent feelings,” (22). Sontag believes that the current metaphors for cancer contribute to a patient’s suffering by establishing that “a steady repression of feeling” causes the disease (22).

We can apply Sontag’s analysis of how metaphors influence society’s perception of disease to medical body imaging technologies in the 21st century to better understand what people expect from these technologies. Sontag herself describes the x-ray as a diagnostic tool that makes the patient “transparent to oneself” (12). The idea of *transparency* is commonly used to describe medical imaging technologies (hence, *The Transparent Body* by van Dijck), but the actual effect of an x-ray, for example, uses radiation to define areas under the skin, but hardly renders the body transparent. The connotations and literal definitions of *transparent*, including that something is patently obvious, may reveal cultural understandings of imaging technologies, but may also reveal that our understanding is more mythical than reliable. Van Dijck challenges “the simplified notion that new imaging technologies lead to more knowledge and thus lift the veil from the interior body” (16). She specifically cites the approach taken by

Cartwright as a guidepost: an image is a representational tool producing meanings at a specific moment in time. Cartwright does not distinguish between medical and other types of images.

Sontag cites Tolstoy's *The Death of Ivan Ilych* as a literary "link between cancer and characterological resignation" (23). The main character, Ivan Ilych, seems to represent a body quite the opposite of transparent. He does not receive the benefit of radiology and "transparency"; his body was deliberately opaque and completely outside the understanding of his physicians. He helps illustrate the universal patient and gives clues to how that role has developed over the past 130 years. Ivan Ilych, a career-minded judge in 19th century Russia, seems to live life void of meaningful personal relationships. He becomes ill with what could be characterized as cancer and tortured by the idea that he had not led life as he should have, slowly realizing "that it was not real at all, but a terrible and huge deception which had hidden both life and death" (Tolstoy 333). His physicians try in vain to diagnose his condition, but the disease afflicting Ilych is elusive. They cannot see or identify it. Tolstoy depicts the physician as somewhat of a charlatan who assumes an "important air," but accomplishes little. The *idea* of the physician offers hope, but the actual presence provides nothing but an endless stream of pointless questions and diagnostic foolery. Ivan Ilych seems to disdain physicians, but when his complaints became unbearable, his wife implores him to see a celebrated doctor and he reluctantly agrees:

Everything took place as he had expected and as it always does. There was the usual waiting and the important air assumed by the doctor, with which he was so familiar ... and the sounding and listening, and the questions which called for answers that were foregone conclusions and were evidently unnecessary, and the look of importance which implied that "if you only put yourself in our hands we will arrange everything—we know indubitably how it has to be done, always in the same way for everybody alike." (312)

The doctor eases the patient's physical symptoms with narcotics, but does nothing to treat the disease. Tolstoy represents the disease as almost character-driven—cancer as an indicator of personality, as Sontag describes. Medical imaging artifacts that visually highlight disease in the body change that by making conditions biological, in the way that Dumit describes PET scans making mental illness a disease of the brain rather than one of the mind.

Close to his death, Ivan Ilych lives only in memories. "Pictures of his past rose before him one after the other" (331). In the pictures, he searches for a reason to explain his suffering. "If I could only understand what it is all for!" he laments (332). Ivan Ilych had only metaphorical pictures to navigate for meaning, whereas well over a century later, we have a seemingly limitless stream of images from which to draw meaning, from both personal and cultural sources. In some ways, the medical image may fall into both of these categories; it is a personal representation with cultural meaning. While it

is not exactly a photograph, the medical image seems to have some photographic qualities. It is an image as artifact that depicts a moment in time (in some cases). In *On Photography*, Sontag writes: "To photograph is to appropriate the thing photographed. It means putting oneself into a certain relation to the world that feels like knowledge -- and, therefore, like power" (4). In the case of medicine, the physician maintains a great deal of this power as one of a privileged few who help create and control access to medical images and electronic data; understanding that position and how it is evolving constitutes an important part of this project.

This project will explore the ways medical imaging technologies turn the patient into data and what the effects are of that transformation. It will study this shifted focus and examine how we can use experimental methodologies to address practical issues in the field of radiology. The effect of medical imaging technologies on culture is currently being studied, yet it is primarily being studied in ways that:

- Consider it historically and from upon high, such as Kevle's comprehensive history of the x-ray and its effect on art and culture and van Dijck's cultural analysis of medical imaging; and
- Produce expected results, as I will discuss in more detail.

This project builds on the existing, broad cultural analysis; it also offers a way of fragmenting that discussion, rearranging it, adding to it, and finding new meaning.

The Texts and Technology (T&T) program provides a foundation for assessing the artifacts produced by medical imaging technologies from both academic and professional perspectives, as well as exploring the idea of the human patient as a multimedia file. Throughout my tenure in this program, I have developed an understanding of medical imaging through research in core courses, such as Saper's Introduction to T&T, where I first addressed how medical images affect the physician/patient relationship, and Bowdon's History of T&T, where I considered how comparative images produced in brain research have increased the number of ostensibly behavioral conditions considered errant or abnormal and subsequently increased drug usage to treat such conditions. In these cases, I focused on the images as texts and the technologies that produced them. Ultimately, the T&T program has helped me develop a complex, multifaceted understanding of how the visualization of the human body through medical imaging affects people by allowing me to deviate from convention in the presentation of both textual and audio/visual productions. This prospectus begs for even more latitude to, in Robert Ray's terms, produce new knowledge. Ray offers grounds for allowing this latitude:

Barthes's late work, with its repudiation of traditional analysis, demonstrates how to achieve a hermeneutic *effect* without hermeneutics. Even at his most experimental ... Barthes *produces knowledge*: we learn something about *Sarrisine* from his paragraph about that novella's names and their spellings. Because,

however, he generates that “information” in unconventional ways, it is easy to dismiss: in a positivist culture, after all, what counts as “knowledge” often depends less on content than on method; even the most banal conventional analysis, in other words, may seem more “true” than a striking idea derived from “illegitimate” means. (99)

This proposal requests permission to break from conventional form and content in a way that befits the T&T program, as according to its Web site, a “unique and innovative program” and “an interdisciplinary field combining scholarly study, creative production, and assessment of digital media texts.”

Research Questions

Using the methods outlined in the subsequent section, this project will address the following questions:

1. Do the artifacts produced by medical imaging tools create a digital patient that is replacing the corporal patient?
2. If so (see #1), does our focus thus shift from the exterior to the interior body and from the whole persona to organ systems, anatomy, and physiology?
3. If so (see #2), can we use methodologies derived from surrealism, literary theory, and theater theory, to address specific issues within the field of radiology, such as perceptual errors that lead to missed diagnoses? (The

- questions that arise depend on the fieldwork available during the course of the project.)
4. If so (see #3), how can we use these methodologies to address specific issues within the field of radiology?
 5. Can using these methodologies help us address other questions in the field of medical humanities, such as:
 - a. If the physician has the medical records and scans – the extensive data stream produced by the patient– is the physical presence of the patient necessary for diagnosis beyond the point of initial data collection?
 - b. Is the physician's shifted gaze indicative of a change in culture to that of a mediated or remediated self in terms of defining wellness, normalcy, and pathologies?
 - c. Is the digitization of the patient leading as well to a decreasing dependence on the physician – an expert highly trained in understanding the diseases and conditions of the human body – and a greater reliance on technologists who understand the tools, along with artifacts that they create?
 - d. If we find that physicians are indeed focusing on an image of the patient rather than the physical body, then what does this mean outside of the medical encounter?

Data Gathering and Method

Relatively scant empirical research exists on the non-medical effects of medical imaging technologies, specifically considering the physician's increasing focus on the image rather than the patient. Bell points out that scholars have addressed medical rhetoric to some degree, citing "Dautermann, hospital discourse; Pettinari medical and operative reports; Schryer, the ideology of the research vs. the clinical report" (251). However, the fragmented, objectified patient has received less attention from the medical community. To understand and evaluate the issues involved in this project, I will draw on a wide range of literature and research, including current medical news and research in the fields of medicine, medical humanities, digital media, the visual arts, and associated areas. At the heart of this project is close analysis of actual medical images and records – texts – that provide a basis for understanding how the imaging equipment – technologies – communicate to physicians and patients a comprehensive understanding of the body. Other components include:

- *A review of existing empirical evidence related to the medical encounter and digital imaging* - Medical journals such as *Radiology* and those journals focused on the many subspecialties of radiology will supplement this project, in addition to journals that concentrate specifically on how medicine affects humanity, such as *Medical Humanities*.

- *Fieldwork in operating and exam rooms that helps illuminate the nature of medical encounters* – I have useful contacts with medical practitioners in surgical and radiological specialties and will use those contacts to facilitate opportunities for investigation and fieldwork. I have also developed a loose network of volunteer patient-subjects, who are in the process of medical treatments and willing to authorize my presence and observation of their medical procedures. Interpreting interaction between physicians, patients, and medical technology is a critical component of this project, as a way of conveying the very personal exchanges that take place between these entities. The field observations will contribute to the project's more experimental form and content. Personal observations from medical settings will play a significant role in this project, both as a vehicle for finding a patient's voice and as a way of engaging the reader's sense of experience. The final text will convey and interpret a sense of experience – that of the patient, the physicians, and the technology that mediates their relationship.

* * *

The methodology for analyzing medical images and texts combines fragmentation, collage, juxtaposition, and interpretation based on surrealist, theatre, and literary theories, and incorporates concepts from the medical humanities field. I will dissect the artifacts – much like the technologies visually dissect the body – and

reconstitute them in a way that produces new meaning. Using a unique combination of methodologies offers a fresh way of understanding the artifacts generated by medical technologies and their effect on people.

Marshall McLuhan called for the “amateur” to undermine existing rules and develop an awareness, because the “amateur can afford to lose” (93). The amateur, in this case, might be found in a standpoint not entrenched and invested in the status quo – outside of the medical community (present committee member who’s a radiologist notwithstanding). To consider the possibilities, the outsider can utilize experimental tools unavailable to the medical community and other scientific venues that might otherwise explore these issues. In this way, the discussion of how digital medical data affects the physician and patient is best suited for the field of humanities, with a focus on the artifacts that the technology produces and the processes used to produce them. This project will lead in surprising directions by using a combination of tools including, but not limited to:

1. *A surrealist method as a way to address the research questions and analyze the visual and textual artifacts produced by medical imaging technologies* – Nothing is a non sequitur. “Everything is valid when it comes to obtaining the desired suddenness from certain associations,” states Breton (41). By adapting surrealist methods of connecting disparate propositions, for example, between a medical record and the fictional character of Tomas in Milan Kundera’s novel, *The Unbearable Lightness of Being*, we can

produce Breton's "desired suddenness" – something new and worthwhile. The desired suddenness is the suddenness of truth – of an answer.

Incorporating surrealist devices allows us to investigate accepted premises in the field of medicine, such as, for example:

- The idea that medical technologies improve quality of life;
- The conception that technology weakens the relationship between physician and patient to the patient's detriment; and
- The widespread requirement that physicians warn patients about the dangers and possible effects of radiological imaging prior to patients undergoing the procedures.

Ultimately, the questions addressed depend on the issues raised during the fieldwork.

Surrealist tools offer a way to approach these issues that deliberately undermines prevailing authority, asks forbidden questions, and offers a useful method from which to construct this particular dialogue. Just as the x-ray offered a new way of seeing the inner body in the late nineteenth century, so does using these methods (or adaptations thereof) offer a new way of seeing the x-ray and the technologies that followed.

Surrealist techniques, such as cut-up, collage, and cubism, allow the introduction of art and literature into scientific inquiry, which help produce new meanings from the medical artifacts. These new understandings can inform the medical field and increase our understanding of what the patient expects from medicine and physicians. Breton

finds the most value in the arbitrary virtue of surrealist tools and sees them as a way of freeing the imagination (38). He proposes that these tools make new meaning from existing texts and images. Breton feels that reality is more than it seems and that: “Existence is elsewhere” (47).

2. *Brecht’s alienation effect to create narratives about medical imaging encounters between patients, physicians, and machines* – By contrast to Breton, Brecht wants to remind us of reality and that the nature of reality is economic. He used techniques in the theater to remind the audience that they were watching a play, rather than observing another representation of reality. He believes that the machinery of theatre, opera, and the press is no longer “a means of furthering output but as become an obstacle to output, and specifically to their [intellectuals’] own output as soon as it follows a new and original course which the apparatus finds awkward or opposed to its new aims” (34). In the case of medical imaging technologies, I consider the perspective that the apparatus that produces the texts creates them for their own purposes – the machines justify their existence. Examples of questions that Brecht’s theories help address are:

- How are the needs of the machines affecting what they produce?
- How is the x-ray or CT scan propaganda?
- Do these procedures and practices continually reify the physician’s privileged status?

Brecht believes that the apparatus produces merchandise, “ruled by the normal laws of mercantile trade” and that is not a good thing (35). Medical imaging technologies clearly provide a vast and complicated economic foundation for many industries, from those that produce the machines, supplies, and training to the medical practitioners who use them. Ultimately, the machines are nothing until they produce an image; yet the image seems *to the patient* to offer such a simple truth (either it’s normal or it’s not) that the image transcends being defined as a product for consumption.

Viewing the medical imaging artifacts as *art* allows us to extrapolate and test different meanings of production in a medical context. And, artifacts produced by medical imaging technologies seem to meet some criteria for art, particularly to artists such as Paul Vanouge, Patrice Caire, Sandy Stone, Steve Miller (Wilson 189-192) and Alexander Tsiaras, who have used these scans as vehicles for creative expression. In addition, the operating room is often referred to in medical literature as a “surgical theater,” a place of performance.

The medical encounter can involve a substantial economic transaction with the patient at its crux; he is a player in the operating or exam theater. Brecht’s techniques in the dramatic theater include the direct address by actors to the audience, transposition of text to third-person or past tense, and speaking the stage directions aloud. He encourages actors to show their own feelings about the characters they portray, which

includes disdain and mistrust, and invites the audience to do the same (138-139). By establishing the fiction of the play, Brecht empowers the audience and enables them to understand that they can change their own realities. This project utilizes techniques adapted from Brecht that highlight the patient's agency and control over how experts implement medical technologies by underscoring certain realities through narrative that detach the patient from the medical encounter. Through the narrative, we see that the patient ends up replicating a fragment of himself in medical imaging procedures.

3. *Barthes' method of finding a "third meaning"* - Once a medical artifact exists, the patient can become less central to her own medical care and physician. The artifact serves as a fragment of her that replaces some information that, in the past, her body would have provided. Yet, the scan or record is often alien to the patient. Fragmenting the text-based interpretation of the image creates a new way of understanding the physician and the often cryptic radiologic report itself. The resulting text might offer something like Barthes's "third meaning," as described by Ray. Barthes cuts up both movie stills and written texts and interprets them out of context. "Both Barthes's 'third meaning' practice of reading movie stills and the Surrealist strategies of film watching amount to methods of extraction, fragmentation," Ray says (36). These methods isolate the detail from the narrative, so that its meaning becomes open for new interpretation. In this case, we can rearrange the fragments to reveal a different meaning of the medical text.

This project offers analysis of the medical record itself, in terms of its semiotics and semantics, and what it means outside of the patient/physician encounter. In *S/Z*, Barthes provides an exhaustive appraisal of how the readers generate that meaning. Through this process, Barthes “recognized that passages unstuck from the larger narrative prompted speculation, different readings, play” (Ray 97). This combination of approaches to analyzing the medical artifacts and processes is experimental and unusual and can produce new, valuable knowledge.

* * *

Ray describes Barthes approach to *S/Z* and states that by yielding to an unusual form, “the writer will find himself led in surprising directions.” Through the fragmentation of a Balzac novella, Barthes “recognized that passages unstuck from the larger narrative prompted speculation, different readings, play” (Ray 97). This combination of approaches to analyzing the medical artifacts and processes is experimental and unusual and will produce the unexpected.

Form

Existing scholarship on medical imaging in the humanities often addresses the issues as seen through a very large window, whereas this project speaks from a tighter viewpoint – from the exam room itself. In the works referenced here by van Dijck, Cartwright, and Kevles, and in related research, it is relatively easy to locate a comprehensive historical review of medical imaging, its role in culture, and how it is

changing views about the body. This project relies on that research and contributes to it, but also offers alternative methods of analysis that produce different results. We can use this rhetorical evaluation of the artifacts produced by medical imaging technologies and their accompanying text records to better understand the fragmentation and continuing digitization of the patient, along with expectations related to illness and the human body. The existing research often shows how medical images and technologies affect and are portrayed in literature and art; this project turns the artifacts into literature and art and, by doing so, answers questions that existing research has yet to address.

The proposed project will include a secondary narrator interlaced throughout the text that questions the validity of the text itself. This voice offers an anti-Socratic device that provides an alternate rendering of the material and perspectives otherwise unavailable to the reader. [Why bother with "an anti-Socratic device" when you can more simply address questions in the text? It seems like you're trying to be *avant garde* by using pretentious tricks instead of developing original ideas that are readily justifiable.] It will include narrative essays that describe observations of physician/patient interaction with specific medical technologies intertwined with discussion of current imaging research in order that we might better understand the role of medical technology and its artifacts as it relates to the pursuit of the patient's goals for using the technology – freedom from disease and pain, along with the forestalling of death – and the physician's goals, which include earning a living,

retaining the role of the expert, and helping patients reach their goals. Case studies, written in a narrative style, provide original, qualitative research, in accordance with IRB guidelines.

Sandy Stone successfully combines narrative and high theory in a way that is “a kind of adventure narrative interspersed with forays into theory” (21). She admits that her work is experimental and “subject to recall,” but ultimately succeeds in drawing together knowledge from many directions into a coherent exploration of the shifting boundaries between humans and technology. She feels that this offers the only way that she “can properly grapple with the formidable challenge of finding viable pathways into academic discourse in the time of cultural studies” (21). Stone considers herself a novelist and does not apologize for allowing that role to influence her approach to scholarship. She “grapples” for different ways to tell the story (20). Ray’s approach to film studies tells a number of stories, resulting from his unconventional methodology. Ray employs extensive fragmentation and collage, influenced by Barthes and the surrealist techniques, which results in a unique form that defies convention and provides extraordinary insight into the analysis of moving images.

Extensive narrative, in addition to the methods described above, may violate conventional form and content and seem unreliable in the face of established scholarship. Ray outlines the traditional allocations “assigning narration to the novel, exposition to the essay, and poetics to the poem” but points out that the avant-garde

allows the author creating the text to adjust the balance of these to his own needs. Ray says the urgent question is how to “establish links that will produce *information*, redefined as a function of surprise” (200). He points out that “the appropriation of avant-garde experimentation for the purposes of humanities research” is controversial (199). The avant-garde here refers to methods of fragmentation, juxtaposition, repurposing, and the Surrealist tradition. Ray justifies its usage as an ideal way for film studies to be understood in an “electronic world” (199). It is also an ideal way to generate a new understanding of medical imaging technologies and their effect on the way we view our bodies, ourselves, in an electronic world. These methods outlined here, developed outside of medicine, offer a powerful way of considering our electronic selves in an electronic world.

There is even a direct connection between surrealism and imaging technologies; the latter had a significant influence on the Surrealists themselves. Kevles describes the influence of x-rays and the idea of transparency on artists, particularly cubists, such as Picasso and Braque (124). Following them, many artists throughout the decades have appropriated x-rays to represent meaning outside of their original purpose.

Ray points out the benefits of using Surrealist tools, specifically:

... the emphasis on method, the tolerance of chance, the practical goals. Above all, Surrealism and its descendents took seriously photography’s break with alphabetic culture, its introduction of new ways of meaning unanticipated by the

camera's first users. As it *developed*, photographic practice confirmed Mallarme's confidence in the benefits to be had from "yielding the initiative" to signifiers—a poem's words, an image's details, an argument's arrangement on the page. (199)

In the end, this project evaluates how people are affected by various medical technologies and not how to build a better fluoroscope. The disciplines involved in texts and technology theories allow for a unique application of theories to fact – information that we understand to be true about a medical setting. Experimentation with voice and narrative expands the ways in which we can examine case studies and other qualitative data to address the questions at hand, and helps people better understand and articulate their relationships with technology.

Topical Outline

The outline of this project is:

1. **Introduction to medical imaging technologies** – This section will briefly describe the various categories of medical imaging technologies, such as radiation, magnetic resonance, and nuclear imaging technologies, and the type of scans and information that they produce. It will include theories of how such technologies redefine the body and the concept of body modification, in addition to the physician/patient relationship.
2. **Case study #1** – Observations of a medical encounter and analysis of medical image and accompanying text record, using a methodology based on

- surrealist techniques in a way that addresses one or more of the research questions.
3. **Case study #2** – Observations of a medical encounter and analysis of medical image and accompanying text record, using a methodology based on Brecht’s alienation theory in a way that addresses one or more of the research questions.
 4. **Case study #3** – Observations of a medical encounter and analysis of medical image and accompanying text record, using an adaptation of Barthe’s method of fragmentation in *S/Z*, in a way that addresses one or more of the research questions.
 5. **Patients and experts** - Interpretation of interviews with patients and experts who have used medical imaging technologies about their experiences, as is relevant to the research questions and in concert with applications of theory.
 6. **Finale** – In this section, the primary and secondary narrators meet and have a conversation that offers final insight into the relevance of this research and its plausibility.

Schedule

Defend prospectus	6/23/06
Submit IRB Protocol form	6/30/06
Complete draft of section 1	8/15/06

Complete draft of section 2.....	9/15/06
Submit revisions of sections 1 and 2	10/15/06
Complete draft of section 3.....	11/15/06
Complete draft of section 4.....	12/15/06
Submit revisions of sections 3 and 4	1/15/07
Complete draft of section 5.....	2/15/07
Complete draft of section 6.....	3/15/07
Submit revisions of sections 5 and 6	3/30/07
Submit complete draft to committee member(s).....	4/15/07
Submit final dissertation to committee.....	4/30/07
Defend dissertation.....	May 2007

Conclusion

Looming death, the promise of healing, and perhaps ultimate transcendence compel us to allow the movement in medicine from human-driven to device-driven. It is conceivable that the medical data stream, or at least the perception brought about by the imagery of our inner selves, helped shift the physician's gaze from patient to monitor. By using unconventional methods and tools to evaluate these changes, we can better understand how the artifacts created by medical imaging systems affect the nature of medicine and the way we see ourselves as both physical and mystical entities.

* * *

Setting: Soon

The doctor gazes intently at her monitor. The patient is a faint outline in her peripheral vision. Each response to the doctor's questions meets the incessant tapping sound of the keyboard as she inputs the necessary information: symptoms, timescale, severity, so forth, and so on.



Printing out the case file of his thirty-third patient of the morning, the technician at the medical imaging facility mundanely bids her, with his customary open-handed gestures, to lie on the table. After the procedure, he clicks *Transmit* and sends off the images for analysis.



"Crohn's disease", exclaims the radiologist. "Poor woman!" How many times has she said that, how many images has she looked upon without ever knowing whose life it was she was condemning to interludes between medication by the precision of her prognosis.



She swiftly pays \$234.56 for the anti-inflammatories, pain relievers, immunosuppressants, and steroids at the pharmacy, though the real prescription calls for more than a pharmacist can offer.



As she ponders her soon-to-be terminated existence, she emits an awkward chuckle. She glances at the scan of her abdominal cavity that was inadvertently sent to her. "At least it'll make a nice picture for the bathroom wall."¹

¹ All characters in the preceding story(ies) are neither alive nor dead and the events depicted did not take place.

* * *

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