M.A.D.A (By Coursework)

RESEARCH REPORT

GROUNDED: LOCATIVE ART AND EMBODIED DIGITALITY

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ABSTRACT

My research is comprised of two connected components – a written report, and an original artwork. In the written segment of the research, I critically assess arguments sourced from digital theorists writing mainly in the 1990s, who positioned “cyberspace” as means of bodily escape, physical transcendence and disconnection from lived reality. I link their writings to a larger notion of technological determinism. I use a combination of theoretical sources and case studies to argue that these determinist attitudes are being challenged by the emergence of a recent artistic practice (termed “locative art”), itself made possible through changes in the understanding of the integration of digital information into the material world.

The second part of my research consists of an original locative work, entitled “Tree ID”. It is integrated into my written research in my third chapter, in which I discuss the technical function and conceptual background of the work. “Tree ID” functions alongside my case studies as an artistic response to technological determinism, and, additionally, as a practical investigation into the South African context of locative art.

DECLARATION

I declare that this research report is my own unaided work. It is submitted towards the degree of MADA by Coursework in the University of the Witwatersrand, Johannesburg. It has not been submitted before for any other degree of examination.

Signed

MITCHELL ANDREW SAID _____

_____ day of _____ 2007.

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Chapter 1

Introduction

"Information, like humanity, cannot exist apart from the embodiment that brings it into being as a material entity in the world; and embodiment is always instantiated, local, and specific." – N. Katherine Hayles ("How We Became Posthuman" 49)

My research consists of two components – a written report, and an original work – with connected aims. In the written segment of the research, I intend to argue that the positioning of "cyberspace" as means of bodily escape, physical transcendence and disconnection from lived reality is a form of technological determinism that is being challenged by the emergence of a recent artistic practice (namely, locative art), itself made possible through changes in the understanding of the integration of digital information into the material world. In the second chapter I will critically assess case studies of locative artworks that I believe challenge technological determinism and reassert the physicality of digital data exchange.

The second part of my research consists of original locative work, entitled "Tree ID". It is integrated into my written research in my third chapter, in which I discuss the technical function and conceptual background of the work. The work functions alongside my case studies as an artistic response to technological determinism, and as a practical investigation into the local context of the locative medium.

Virtual Hype and Cyberspatial Utopianism

"The hype around digital virtuality over the past decade", Rob Shields assures us, "has been more about myth and less about actual cyberspaces" (Shields 15). The emergence of 'Virtual Reality' and the beginnings of popular Internet use in an around America and Europe in the mid 1990s saw the notion that digital information is without body expand into the idea that reality was de-locating into the placeless, borderless landscape of

'cyberspace'. The term, as (ab)used in much of the digital media theory of the era, is an ambiguously defined yet theoretically expedient conglomeration of the world wide web and the simulated environments of virtual reality, two distinct technologies that became (sometimes deliberately) confused through a shared geographic metaphor.

Virtual Reality (or "VR" as it was frequently known) allowed users to don clunky headsets and experience a 3D-rendered simulation of visual immersion in a scene. Its initial popularity was curbed by the then-limits of the technology ('reality' was too often synonymous with polygon-addled abstractions)[1] and its physiological effects[2]. Ultimately, its contribution to the notion of a 'cyberspace revolution' didn't rise much beyond novelty – it was more successful as a crude rendering of a cyberpunk fantasy than a serious force for societal change. The Internet offered a far more potent vision of a genuinely new geography: seemingly ever-expanding, under uncertain control, and (apparently) anonymous. Message boards and user-groups gave rise to the first 'virtual communities'. Almost every variety of human experience was appended with an 'e-' (shorthand for 'electronic'), in a wave of media hype that imagined a future where bodies cocooned into spaces of human-computer symbiosis.

A brief attempt was made to merge these two cyberspaces, in the form of "VRML", or "Virtual Reality Modeling Language". This was an attempt to create interactive online 3D environments that functioned as a representational material model of the Internet landscape. As a replacement for browser-based Internet use, it never achieved significant popular appeal (Manovich 1).

Two overarching viewpoints emerge in digital theory around this time: the inexhaustible resources of cyberspace will either serve as a solution to Western social decline,

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[1] In "Image-based Techniques for the Creation and Display of Photorealistic Interactive Virtual Environments"(2004), the authors note that "highly interactive virtual environments, such as virtual prototyping systems, are usually comprised of simplified 3D models that are optimised as to not consume too many graphics rendering cycles" (Drettakis, et al.)

[2] Some of these effects include motion sickness, headaches and ataxia (Stanney, Mourant and Kennedy)

liberating us from the desires and complications of our desiring bodies, or it will absorb all solidity and certainty from our physical geographies, leaving time and space as rootless fragments that "never coalesce into a single knowable order" (Boyer 15).

Indeed, in its most rapturous form, virtual hype more than hinted at religious fervour. In her book The Pearly Gates of Cyberspace, Margaret Wertheim examines claims of cyberspace as spiritual eternity. Wertheim quotes a number of fervent acolytes of cyber-salvation, such as VRML co-creator Mark Pesce (who describes a VR world as "a state of holy being") and Virtual Reality animator Nicole Stenger (who claims "cyberspace will feel like Paradise")(18). Of these devotees, Hans Moravec, robotics expert, is perhaps the boldest. Moravec sees cyberspace as explicitly heavenly, a realm where "death shall be no more", and bodiless immortality will be made possible through computer simulation (qtd. in Wertheim 19).

Wertheim recognizes these fantastic claims as reflective of a collective societal desire. She locates a number of potential reasons for the abundance of "cyber-religious dreaming" (19), some of them reactions to what she sees as the "relentless body scrutiny" of American society (22) - the unattainable desire for a perfectible physique manifested in the imagined deletion of the body. She quotes virtual reality pioneer Jaron Lanier on VR's "promise of transcending the body" (qtd. in Wertheim 23).

More generally, Wertheim frames cyberspace-as-paradise as a response to the "psychological and philosophical crisis (35)" caused by the exclusion of "spiritual space" in the scientific revolution's definition of reality – "with physical space stretched to infinity, it was no longer possible to imagine that… …there was any room left "beyond" for any kind of reality.

While Wertheim's spiritual vacuum theory is in some ways as reactionary as the responses she critiques – her claims that the "purely physicalist picture" (39) painted by modern science has forced society into a resurgence of the mind/soul dualism of medieval times seem as misplaced as any virtual hype - she nonetheless provides some

interesting context regarding how cyberspace became a touchstone for technological evangelism. Digital theory of the last decade has been overrun with alternatively utopian and dystopian accounts of humans utilizing technology to sever themselves from their physical spaces, enforcing notions of an easy Cartesian mind-body split. Other, equally alarmist accounts, have applied postmodern theory to the contemporary experience of technological simulation, offering warnings of a reality drowning in a sea of endlessly reproducible electronic signs and symbols. This thesis argues that they are both equally reductive assessments, and follow one central pattern of determinism that adheres to a model of technological cause and worldly effect.

Postmodern Pessimism and Technological Determinism

Published in 1996, M. Christine Boyer's Cybercities describes an impending urban environment in danger of losing connection with real. In the case of Cybercities, the erasure of physical reality has less to do with a general spirit of technological utopianism, and is more the result of the (arguably misplaced) mapping of literary theory onto urban space. Boyer extends the "textual universes" of "postmodern accounts" that "conjure up fictional worlds" and "disavow any link with material reality" to the modern physical urban landscape, claiming that we have moved "from the machine city of modernism to the informational city of postmodernism" (14). Boyer perceives "a new etherealization of geography", where reality is transferred to "imaginary networks"(15). The "western space of geometry" has undergone a "profound mutation" (14), She claims. Boyer's characterization is decidedly singled-sided – it follows the pattern of technological determinism (fed by postmodern paranoia) that sees a once-stable reality crumbling under the threat of technology. "The physical space of the city is disappearing or dematerializing" (138), she declares, and its replacement, cyberspace, is virtually nonexistent - an "extended grid of ones and zeros without dimension" (117). While Boyer writes that the cult of Virtual Reality enforces Cartesian notions of a mind/body split, it comes as less of an observation that a warning – as if Virtual Reality might actually succeed in create a second world where brain can reside, free of its corpse (118). Boyer's language expands into the alarmist – we will apparently experience a "loss of spatial

boundaries", in which "all spaces begin to look alike" and "implode into a continuum" (19).

In "From city space to cyberspace", Jennifer Light wonders if Boyer's approach - for all of its future-panic - is not essentially a "nostalgic" one (124), longing for an imagined era of authenticity, before the city's "fall into mediation" (120). Light observes Boyer's conflation between cities (that have apparently become disconnected from their local geographies through increased mediation) and cyberspace (as mediated realm without physicality) (121), but finds the link tenuous. Light sees "virtual environments" becoming part of "everyday reality", and locates a complexity in the interaction between the virtual and the real that refuses the easy linkage of urban decline to "the growth of electronic media" (120-124).

While Virtual Reality prompted an outpouring of alternatively alarmist and utopian accounts of the end of materiality, Light notes that the notion of technology disconnecting humanity from embodiment is far older than VR. Since the advent of "home delivery media" (Light 119) (intended to include television, the telephone and radio), technology has been positioned as both enemy and savior of public life, allowing immobile citizens to withdraw into alternative realities. What Light identifies here is a pattern of technological determinism. It's this determinism – the one that frequently accompanies hype over new technologies – that seems to have fostered and furthered the most outlandish claims surrounding new media.

In their introduction to Does Technology Drive History (1994), Leo Marx and Merrit Roe Smith note that "technological determinism" has a variety of forms, though all lend credence, to some extent, to the notion of technology as "a crucial agent of change" (ix). They identify popular historical narratives that confirm to such a model, from the idea that the voyages of Columbus were made possible by the invention of the compass and other navigational tools, to the notion that the printing press brought about the Reformation. Marx and Smith narrow this reoccurring narrative to a single template: "a technical innovation suddenly appears and causes important things to happen" (x).

Society's increasing use of computers and other digital devices have served to further this "before-and-after" model. As Marx and Smith explain, as "each 'generation' of enhanced computational sophistication has led, in a seemingly predetermined sequence, to the next" and society has become "increasingly dependent" on "large, intricately interrelated technical systems", the idea that the fate of humankind and its social order is a matter of technological progress has gained further credence (xi).

Marx and Smith describe a "spectrum" of technological determination, with two poles – "hard" and "soft". In "hard" technological determinism, agency is "imputed to technology itself"(xii) – technology now alters society to meet its own needs, and its demands dictate the dominant historical narrative. "Soft" determinism, on the other hand, sees technology and technological power as an amalgamation of divergent "social, economic, political, and cultural" forces (Marx and Smith xiii). Though this approach might "relocate" the origin of technological power, it still allows for the notion of a technology-driven history, but incorporates "human tendency" as an essential element. Nonetheless, it challenges the view of technology as an "independent agent" (Marx and Smith xiv).

In my research area, the brand of determinism I will be arguing against is the "hard" form. As Marx and Smith elucidate, this form of determinism is prone to extremes: to optimists, innate technological agency is the ultimate "dream of progress", to pessimists, it is a "totalitarian nightmare" (xii). Drastic proclamations of this sort colour the debates and writings around cyberspace, as has already emerged in Wertheim's research and in Boyer's writings.

In "Technological Determinism in American Culture" (1994), Merritt Roe Smith begins by tracing a history of optimistic technological determinism. As defined by Smith, "technological determinism" is the belief that "changes in technology exert a greater influence on societies and their processes than any other factor". Smith dates the notion of technology as the "key governing force in society" to the early stages of the Industrial

Revolution, and locates its larger "intellectual heritage" in the eighteenth-century Enlightenment leaders' faith in technology as a "liberating force", and the emergence of the "popular idea of progress". (Smith 2-3). As Smith cites Alexander Hamilton's exuberance for mechanized manufacturing and its supposed moral dimension ("…it will lead us once more into the paths of virtue by restoring frugality and industry… …and will give us real independence")(4), we can position the cyberspatial utopianism of 1990's within a larger historical framework of determinist thought. In Karl Marx's expectation that the railway in India would "dissolve" the caste system (qtd. in Heilbroner 70), one can identify a clear antecedent for the proposed democratic qualities of a cyberspace, where "we will all become angels", as Nicole Stenger says (qtd. in Wertheim 18).

In Leo Marx's essay "Postmodern Pessimism" (1994), postmodernism is identified as a proponent of technological determinism, an approach that best describes the attitude of Boyer in Cybercities. Marx defines postmodernism by first referring to aesthetic postmodernism – an approach characterized as a "repudiation of the earlier, modernist style in the arts", especially as expressed in contemporary architecture. Marx cites Lewis Mumford's investigations into the sources of architectural modernism, which Mumford traced to "a set of preconceptions about the historic role of technology", namely "the belief in mechanical progress as an end in itself" (253). Though postmodern accounts claim to reject such beliefs, Marx finds that their "redescription of social reality" often "proves to be even more technocratic" than the "distorted Enlightenment ideology" that they oppose (256). Postmodernism's vision of power in society, Marx argues, is one with no "central… locus", which typically "develops from below". Marx makes an analogy between this pervasive yet elusive notion of power and the "forthcoming mode of fiber-optic communications", the linking of all media forms in a global network. As presented by Marx, the postmodern response to "the domination of life by large technological systems" is a subsequent "diminished sense of human agency", that ultimately results in either "self-abnegating acquiescence" or, as seems to be the case with Boyer, "resignation or fatalism" (257).

In my research, I intend to argue that these technologically deterministic models (incorporating both optimistic cyber-utopianism and pessimistic postmodernism) are best contested through the creative and artistic use of new technologies. It is perhaps through the artistic use of technology that determinism is best diluted, and cultural and societal agency is reinstated. In keeping with this approach, I will attempt to clarify the surrounding cultural environment from which these works have emerged.

Digital information has long been considered an abstract entity, without physical manifestation, but today's experience of portable and embedded electronics have forced us to reconsider our previous alienation from the processes of electronic information exchange. The increasing popularity and affordability of mobile phones[3], coupled with availability of wireless connectivity in a number of public spaces means that, more than ever, digital technologies have been inserted into our physical lives. We no longer consider the desktop computer as a portal into another realm of geographic reality; our physical and electronic landscapes are instead part of a holistic system, with all varieties of media contributing to a geographic space in constant flux. Information, in exchange, transfer and download, never occurs in a realm outside of, or uncomplicated by, physical reality (Mitchell 3-6). Simultaneously, our geographic landscapes are becoming embedded with layers of digital media, altering our experiences of the physical world. The convergence of these realms, like most collisions, is not tidy – the meeting is complicated and contingent, and arguably disallows easy articulations of the condition of media, both digital and physical.

This move from the 'virtual' to the 'embodied' can be observed in the shifting attitude of theorist William J. Mitchell, in his publications City of Bits (1995) and Me++ (2004).

In Mitchell's City of Bits, the material and informational realms are not only distinct, but opposed – 'virtual' replaces 'real', bits replace atoms. The emergence of cyberspace is seen as a harbinger of the dissolution of all material reality. "The Net", Mitchell contends, "is profoundly antispatial" and "completely disembodied" ("Bits" 8).

[3] The number of mobile phone subscriber numbers rose above 3 billion in 2004 (Gow and Smith, 1)

Mitchell's abstract formulation of Internet geography ("radiating boulevards for bits"), has no connection to any physical understandings of space, essentially "negat[ing] geometry" ("Bits" 8). The informational bits that Mitchell discusses are presumed to exist in a spatial realm outside our material world, and threaten (with every increase in technological capacity) to eventually replace it. Mitchell asserts that once we have both our "real three-dimensional world" (asserting the primacy of the visual in our establishment of authenticity) and our computer-generated "virtual" one, the distinctions between the two "can get fuzzed or lost" ("Bits" 20).

Consequently, the 21st century city is left "unrooted to any definite spot on the surface of the earth" (Mitchell, "Bits" 24). The human body is conquered and outgrown – Mitchell suggests that we will soon "break the bounds of [our] bag of skin" ("Bits" 30), becoming "infinitely extensible cyborg[s]". All our extended cyborg peripherals (our walkmans, our PDAs, our "smart spectacles) seem to be less in service of the body than intended to replace it (Mitchell, "Bits" 29). According to Mitchell, the "boundaries of the body and the limits of the nervous system" are becoming "less determined" ("Bits" 31). Sooner than postulating a network system functioning alongside existing human bodies, Mitchell proposes "Intelligent exoskeletal devices" that see humans transforming all integral bodily desires into actions-at-a-distance, with the addition of bodily hardware. Immersive environments take the (now-obsolete) shape of "head-mounted stereo displays" and "holographic television" ("Bits" 19-20).

Mitchell seems to deny the physical world any significant role in the embodiment, presentation and transformation of information - "There is no great difference", he claims, "between a laptop computer and a desktop model, between a wristwatch and a clock on the wall". "It is just a matter of what the organ is physically attached to, and that is of little importance in a wireless world where every electronic device has some… …telecommunications capacity" (Mitchell, "Bits" 30). When Mitchell invokes the "mind/body problem" (a problem that clearly persists in colouring our understanding of neural functioning and informational exchange) it isn't to solve, or even grapple with it – it's to again erase the body in favour of electronic data transmission, creating a (new, yet

old) “mind/network problem” (“Bits” 31). The struggle to locate our humanity (“the cyborg soul”) within this “carbon/silicon” divide is not being won by the “wet side”, Mitchell claims (“Bits” 31). Acknowledging he is in the theoretical company of so much cyberpunk literature, Mitchell wonders if we might “hack immortality” by storing our cyber-identities on disk, “to outlast our bodies” (“Bits” 15).

Seven years after the publication of City of Bits, Mitchell continues his investigations into the “networked city”, but with a considerably more measured approach – the realities of human and technological development not having yielded to his visions of fleshless informational exchange. In a gesture somewhere between self-effacing and excusatory, Mitchell refers to the virtual hype of 1995 as “long ago”, (“Me” 128) and recalls that it sometimes seemed that cyberspace might “supplant physical space”. Last decade’s divorce of “bits and atoms” is revised as a “trial separation” (Mitchell, “Me” 3), and we are assured that it is now over. In Me++, Mitchell now notes a “complementary” meeting of physical and cyber-space, an “intricate, mutually transforming embrace” (“Me” 129). “By the early 2000s”, Mitchell concludes his chapter, “bits had returned from cyberspace” and have “gone on location in the material world”. Mitchell now emphasizes that we should visualize the processes of information technology as “physical events happening in physical places” with “definite spatial and temporal coordinates” (“Me” 4). Our “mental maps of buildings and cities are becoming less static records of fixed features and more dynamic representations of currents conditions (Mitchell, “Me” 160), he writes.

As for escapist fantasies of retreat into alternative mind-realms, Mitchell now doubts that “the inscription of information into organic neural networks is rather more complex than that of magnetic bits onto thinly spread iron oxide”, explicitly criticizing the “digitalist dogma that “content” can always be cleanly separated from its current material embodiment” (“Me” 167). One sentence later, however, Mitchell insists on again imagining a “postbiological future” in which we will think of ourselves as “software, not hardware” (“Me” 168). The imaginative appeal of post-humanity, reiterated and reinforced through sources both scientific and fictional (and, most often, science-

fictional) is clearly overwhelming, Mitchell's obvious penchant for "what if" scenarios notwithstanding. In Me++, Mitchell ably identifies the changing landscape of computing, but his remaining belief in technology as a force for radical change, one with the capacity reinscribe human identity and function, betrays a dormant determinism.

In "The End of Geography or the Explosion of Place? Conceptualizing space, place and information technology" (1998), Stephen Graham criticizes "deterministic technological models and metaphors of technological change". Graham suggests that the metaphor of a measurable "impact", central to so much of the discourse surrounding "space, place and information technologies" is problematic – it implies a linear system of "technological cause and societal effect". The 'effects' of technology are frequently discussed as if their creation and function were occurring outside of human society (Graham 180).

In the same essay, Graham offers a detailed analysis of recent theories of information technology and its relationship to spatiality, identifying three "dominating" perspectives. These he has labeled "substitution and transcendence', 'co-evolution' and 'recombination' (165).

'Substitution and transcendence' is, broadly, the approach I've identified in the writings of both Boyer and Mitchell – the deterministic notion of technology as liberating human life "from the constraints of space and frictional effects of distance", combined with the dissolution of the physical metropolitan city, the migration of societies, cultures and economies "into the electronic ether", and the eventual replacement of the material world with a virtual replica. "The very concepts of material space, place and time, and the body" will be rendered "obsolete" (Graham 168-170).

Graham's "Co-evolution" approach avoids the reductionism of a notion of technology as a "complete and simple substitute" for material bodies and processes and rather sees the emergence of "complex articulations" between geographic place and information technologies. It emphasizes "physical and localized" experiences, opposed to the abstract and disconnected proposals of the "world rejection"-contingent. Information technologies

are part of the "active construction of space and place" (174). Urban place and telecommunications networks are co-evolving, in a "state of recursive interaction" – each alters the other in continuous and multiple ways that deny the notion of technology as a singular, unified force for 'change'.

The "Recombination" approach places even greater emphasis on context and contingency than "co-evolution" – societal actors "enroll" technology into "actor-networks", creating "purely relational" processes. This approach does not distinguish between human and technological being and creation – the capability of any machine only becomes viable when coupled with a social/human context, and that context is never entirely stable, creating fluctuating relations of meaning. Recombination stresses multiplicity as an unavoidable condition of material being, 'cyberspace', then, is in no way a singular entity. Similarly the material infrastructures of information technologies ("cable… telephone networks, mobile, transoceanic optic fibres") must be considered in any evaluation of the meaning and use of the systems they support. Recombination avoids "essentializing sociotechnical relations" (Graham 178 -180).

Technology is not, however, the only element of the relational equation susceptible to oversimplifiction and determinism. We should, Graham insists, be equally wary of treating physical geography as merely bounded, defined areas, or "Cartesian spatial objects" (181). 'Urban space' consists of electronically-connected, geographically disparate entities operating in parallel with place-based interactions, reliant on physical propinquity.

In her essay "Embodied Virtuality: Or How to Put Bodies Back into the Picture", N. Katherin Hayles critically responds to "disembodied" accounts of cyberspace and VR, calling these testimonies "deeply misleading" – "our bodies are no less actively involved in the construction of virtuality than in the construction of real life", she writes. The disembodiment "illusion", Hayles asserts, is created by "draw[ing] a sharp boundary between the body and the image that appears on screen", while ignoring the technological interfaces that make the connection between both possible. The image on the screen

(made to appear three dimensional through "exploiting" conditions of human visual and aural functioning) is "reified", the screen world is presented as an "alternative universe", a world inhabitable by the mind, with the body left behind (Hayles, "Bodies" 1).

Hayles offers a condensed account of what she sees as the conceptual nexus of cyberspatial discourse and technology: "virtuality" (defined by her as "the perception that material structures are interpenetrated with informational patterns"), looking specifically at the construction of the body as virtual. Citing the work of Erwin Schrodinger in the 1940s that characterized the body as "an expression of genetic information" and considering Gregory Bateson's assertion that "information is primary", Hayles traces a history of the "virtual body". Hayles is critical of accounts that fail to acknowledge that the body is "neither simply material objects nor informational pattern" but "both at once", and concludes that when the body is seen as information only, it seem possible that it can be transcended, erased ("Bodies" 4-6).

In How We Became Posthuman (1999), N. Katherine Hayles further examines the historical process that led to the understanding of information as a disembodied entity. Hayles articulates a condition she calls "posthuman", characterized by a number of connected elements, including the "priviledg[ing] of informational pattern over material instantiation" (making biological embodiment an "accident of history"), an understanding of the body as "the original prosthesis" (so that the extension/replacement of the body with additional electronic prosthetics is a continuation of an already-occurring process) and a configuration of the condition of the human being that allows it to be "seamlessly articulated with intelligent machines" (Hayles, "How We Became Posthuman" 2-3). Hayles sees this vision of posthumanity as one built on simple dualisms, and strives to redefine posthumanity as a condition that "celebrated finitude" and "understands that human life is embedded in a material world of great complexity" ("How We Became Posthuman" 5).

In her essay "Nature Morte", Margaret Morse extends Hayles's description of the cyberspatial body as "a technical object under human control" (qtd. In Morse, 201) to

include the physical landscape. Morse investigates cyberspace as it relates to the desire to control material space – virtual nature, in the process of representation, is contained, with the possible intention of its dual destruction and transcendence (208).

Morse discusses the societal practice of travel, claiming that it is "driven by a romantic desire [for] transformative symbolic experience in an *other* place, preferably a paradise, from which one could return renewed" (209). Running with Morse's metaphorical linking of cyberspace and tourism, an artistic medium allowing the expression of a complex and contingent relationship between physical and informational space might be likened to disembarking from one's vehicle in order to walk around an environment, absorbing the details that may have eluded the one-dimensional sheen of the brochure.

If there's a singular notion that is alternatively championed and admonished in the literature I've examined, it's the belief that 'cyberspace' and its surrounding technologies operate not only without material instantiation, but in opposition to it, offering an alternative livable reality disconnected from the physical world. The distinction between technology and the bodies and places in which it operates has become so defined that theoretical models tend towards observing the 'impact' of technology as if it were being imposed on us from outside culture and society.

Theories and Technologies of Locative Art

The theoretical shifts proposed by Graham, Light and Hayles are already underway, and the increasingly sophisticated capabilities of mobile technologies are being utilized to move computing away from desktop-based models. An emerging artistic practice based around these and other wireless and location-aware technologies – termed "Locative Art" – perhaps most clearly embodies these current movements in both discourse and practice.

Locative art is primarily defined by the (artistic) use of location-tracking or location-sensitive technology, often in the form of various positioning systems and wireless networking devices, to link digital information and geographic space. Karlis Kalnins at

the RIXC Centre for New Media Culture first proposed “Locative Media” as a term to distinguish the artistic use of location-reporting devices from the large amount of commercial services and applications making use of the same technologies. (Tuters, “Utopia”).

The focus here on specifically the artmaking potential of the technologies is also central to the argument that determinism is best contested through critical and self-reflective use of media, more common in artistically-minded practice than overtly commercial uses of location-aware devices.

The RIXC Centre sponsored the first Locative Media workshop in 2003, which took place from July 16-26, in Karosta, Latvia. The workshop produced something of a manifesto in the online report, theorizing the possibilities of new technologies and practices. It anticipates a "collaborative cartography" that will allow its users to “map their physical environments with geo-annotated, digital data”. “As opposed to the World Wide Web”, it makes clear, “the focus here is spatially localized” (“Locative Media”).

The majority of these technologies are found in an instrument common to almost all of the works I will be discussing - the cellular phone[4]. A number of artists and art collectives have seized upon the near-ubiquity of the device in urban centers worldwide as a unique opportunity to re-imagine urban space and explore geographic experience.

Mobile access is available to a greater number of people on a larger socio-economic scale than previous network technologies (Dornan 4). As an always-on, readily available communications tool, the mobile phone brings the user into proximity with a number of technologies used to both track location and supplement it with digital information. It is telling that an early term used to refer to wireless access to digital information (coined by

[4] Cellular phones (interchangeably referred to as “cellphones” or “mobile phones”) communicate via cellular networks. These are based on the use of small radio coverage zones known as ‘cells’. The cellular network design is based on “many low powered transceivers” located throughout the city (or intended area of coverage) that serve geographically small areas. In areas where there are many physical obstructions, more cells are required. (Gow and Smith, 28)

David Bennahum and used by Lev Manovich in his essay “The Poetics of Augmented Space”) (2002) was “cellspace”.

Technologies common to locative works include Global Positioning Systems (GPS), Global Systems for Mobile Communications (GSM)[5], and Wi-Fi[6]. While the other technological standards are necessary to enable access, GPS is the technology most frequently involved in actual location tracking. The Global Positioning System is a "constellation" of 24 well-spaced satellites that orbit the Earth, allowing people equipped with ground receivers to pinpoint their geographic location. The location accuracy is anywhere from ten to a hundred meters for most equipment. On the ground, any GPS receiver contains a computer that "triangulates" its own position by getting bearings from three of the four satellites. The result is provided in the form of a geographic position - longitude and latitude. The GPS satellites transmit signals allowing the determination of speed, distance travelled, the length of travel and estimated time of arrival at a destination (Zeffiro 4). GPS is the source for many Geographic Information Systems (or GIS) that are used to “store, analyze and display geographic data” (Zeffiro 3) – in many instances, these systems have replaced traditional cartographic measures, and usually make use of large electronic databases linking individuals and address to location coordinates.

Locative art’s challenge to the last decade’s prevalent digital discourse begins in the technological operation of location tracking. In the essential function of location reporting (its varieties of experience notwithstanding) informational space is necessarily entangled with the specificity of geographic experience. Whether physical space is presented as a connection node to a larger online network, a real-world marker asking you to retrieve an invisible message-in-waiting, or a place to be while receiving networked instructions-at-a-distance, it is difficult to use locative media while retaining the notion of network technology as entirely effacing ‘the real’.

[5] GSM stands for Global System for Mobile Communications. It is a European-designed standard for cellular communication. GSM is the current standard for 70% of world cellular coverage. (Gow and Smith, 47).

[6] Wi-Fi is a trademark owned by the Wi-Fi Alliance, used to describe the IEEE 802.11 ‘suite’ of technical standards for wireless LANs (Local Area Network). The term LAN refers to a network designed to provide radio coverage throughout a “relatively small geographic area”(Gow and Smith, 97).

In “The Poetics of Augmented Space”, Lev Manovich traces several antecedents (both technological and cultural) to today’s locative art. Written in 2002, Manovich presciently predicts the convergence of several initially distinct research areas, including “Wireless Location Services”, “Ubiquitous Computing” and “Augmented Reality” (3 - 4). “Augmented Reality” was coined in the early 1990s, already responding to the emergence of Virtual Reality, though the initial ideas for the eventual application of “AR” now seem almost as ill-conceived as the VR headset – one scenario saw a copier repairman wearing AR-enabled glasses that would overlay a wireframe image of the interior of the copier device. The basic concept remains relevant – technology used to supplement physical reality, instead of replace it.

Manovich also finds several established artists and cultural practices that he feels are emblematic of both augmented reality and the move from virtual to physical space. These include artist Janet Cardiff’s “audio walks” – compact discs containing audio pieces that combine field recordings, narrative fragments and movement instructions intended to be played on headphones and used as a sound guide while the participant navigates the intended path. Manovich suggests that Cardiff’s work is an example of the augmentation of physical space with digital audio information, despite the lack of networked and/or location-aware technology (Manovich 6).

Manovich also uses examples from modern art history to trace a larger cultural move from virtual to physical space. Acknowledging that he is offering a condensed, compressed account of several distinct histories, Manovich moves all the way from Tatlin’s 1910 reliefs to the 1960 rise of Assemblage and the eventual emergence of installation art in illustrating the move from 2-D representational (or “virtual”) space into the three dimensions of the gallery and installation space. His vision of future artistic use of locative media is still arguably narrow, however – he predicts gallery spaces filled with context and location-specific information, not the artistic use of technology to deliver a location-centric experience to the participant (Manovich 7-8).

Manovich recognizes the utopian impulses within “cellspace” – its claims to continuous and all-reaching access to physical space. As Drew Hemment would later emphasise, Manovich acknowledges the indexical limits of location-aware technologies, their attempt to “make the map equal to the territory”, the ability to “observe every point at every time”. Diluting both these utopian impulses and anticipating the emergence of dystopian theories of locative media and its potential for surveillance and control, Manovich quotes Matt Locke on the “discontinuity” of Hertzian space - Locke emphasizes the real-world “obstacles”, the “ebbs and flows” that accompany the practical use of locative media. (Manovich 8-9). Prefiguring the work of Rob Lycett and others, Manovich suggests that such interruptions might be the source of “interesting aesthetic strategies”.

Again anticipating arguments that would only come into cultural play as locative art disputes many years later, Manovich wonders if augmented space might be able to reverse the trend of cultural application following in the wake of military and industrial technological innovation. Manovich hopes that cultural institution might begin “acting as laboratories where alternate futures are tested” – in a certain sense, locative art has vindicated this claim, with some of the most creative uses of “augmented space” having emerged from locative project. Manovich encourages this “next step” outside the “picture frame”, onto the wider world, where the “interaction of physical space and …data” is open to exploration. Manovich makes the key point on inviting both artists and architects to consider “the “invisible” (quotation marks his) space of electronic data flows *as* substance rather than just a void – something that needs a structure, a politics, and a poetics” (Manovich 14-15).

Manovich’s focus on the interaction and integration of physicality and data betray his understanding of the innate connections between the two. Telemediated and place-based technologies reveal geography and digital media as (to use Graham’s term) ‘co-evolutionary’ - they are simultaneously changing one another. To understand them as only rivals is to ignore a much larger and more intricate dialogue – one which much

locative art makes the subject of its artistic investigations, interruptions and interrogations.

The Move from Net Art to Networked Art

So far, there has been relatively little published on locative art. Along with Drew Hemment's "Locative Art" (which I will later discuss), one of the notable exceptions is the recently published article "Beyond Locative Media", in which Marc Tuters and Karzys Varnelis offer a brief history of locative art, situating it as the heir to the "net art" phenomenon (Tuters and Varnelis 358-359).

Technologically, it seems cogent to position Internet art as the forerunner to locative art: both make use of networked communications systems and, prior to widespread cellular and wireless access, much of what is now transmitted via those systems was first accessed via desktop-based Internet use. However, the creative and artistic heritage of Internet art-as-locative forebear is mixed. While some artists used the medium of the Internet to create works that, in their activist leanings, were intended to have broad 'real world' impact, others focused their critical and creative abilities towards the language and function of the Internet itself, resulting in an arguably stunted formalism that resisted wider engagement with the real world.

In her essay "Web Work", Rachel Greene gives an account of the "utopian halo" that surrounded early Internet use. The optimistic atmosphere was particularly evident in post-Communist Eastern Europe, where the Internet was a newly available technology that seemed exceptionally suited to recently adopted democratic ideals. The Open Society Institute and other NGOs funded media centers and computer education programs, allowing for many "motivated enthusiasts" to engage in this new, international, form. (Greene, "Web Work"). It was in this spirit of globalism that the first net art was fostered. The form itself seemed to encourage the transgression of geographical boundary.

With this in mind, it's perhaps not entirely surprisingly that some "Net Art" tended towards insularity – many 'works' were chiefly interested in subverting the formal language of the Internet and resisting what they saw as the imminent corporate co-option of the medium. One early exception amongst these might be one of the very first Internet artworks, Heath Bunting's "Kings Cross Phone-In". In this work, Bunting posted a list of phone booth numbers around Kings Cross Station on the web, and invited people to call these numbers anytime during the day, disrupting the normal flow of urban life. The work's "opening up" of the Internet interface, allowing it to "extend into public space" is linked by Greene to situationism, a movement that would function as a key reference by many locative works to come (Greene 34).

Of the Internet artwork that followed "Kings Cross Phone-In", many retained the mischievous, anarchic spirit of Buntings' interventionist model, but far less of them involved interaction with physical space. In her book Internet Art (2004), Greene co-opts visual arts terminology when she refers to these more formalist works as "site-specific" - the sense of location is a self-aware one that positions the work in the "networked public field of vision and consumption" (Greene, "Internet" 40), not in any particular geographic spot. Even Bunting's later works, such as "_readme.html"(1996), are more concerned with the language of software programming and Internet protocols (the work's name is derived from the documentation that accompanies most software installers) (Green, "Internet" 43) than real-world embodiment. Many of Net Art's anti-establishment, anti-authority leanings would end at the point of screen-based interaction, though some encouraged subsequent real-world action. One of the most frequently cited of all net art collectives– Jodi.org – produced work that perhaps best exemplifies the extremes (and ostensible limits) of screen-based practice. One of their sites, "wwwwwwwww.jodi.org", made visible (in large, pixellated text) elements of the site's HTML code, which, in any other website, would normally be invisible. Other tactics included transforming user-entered text into impenetrable code, or isolating only the vowels from sentences (Greene, "Internet" 40). Sites like those created by the Jodi.org collective did offer some measure of insight into the oft-obscured workings of a technology (even if only as a side-effect),

but its conceptual circumscription by the boundaries of the Internet browser window left it limited room to engage the Internet as a force for larger social action.

In defining its autonomy from commercial sites, Net Art occasionally tended to see its semi-uselessness as a virtue. An apt example is a site made to commemorate a meeting of Net artists in Trieste, Italy called “Net.Art Per.Se”, which aped the format of the CNN site, complete with invented headlines - one of which announced, tellingly, “Art Without Social Involvement is Possible” (Greene, “Web Work”).

Net Art’s sometimes narrow formalism was limited in both its inability to keep up with constantly changing, evermore sophisticated commercial utilization of the Internet and its proud refusal to engage with the world surrounding the Internet. As networked media was connecting ‘cyberspace’ with real world locations and inserting itself into the social fabric of societies previously unfamiliar with the early Internet, Net Art, in its definition as a screen-based medium, was seen to have reached an artistic dead-end (Tuters and Varnelis 358).

According to Tuters and Vargelis, Net Art was allowed a second life only after its expansion into ‘networked art’. More than a semantic elaboration, the use of ‘network’ signaled that Net Art practioneers had begun acknowledging the increasingly large number of people using network-connected media in environments very different to that of the desktop-based Internet user.

Several concurrent trends in digital thought and practice have all contributed to ‘networked’ life – the widening availability of broadband Internet, the emergence of increasingly integrated mapping software and the general emphasis on mobility. The ubiquity of cellular phones, in both affluent and developing nations, continues to transform our perceptions of the Internet as a screen-based and individually isolated experience. The South African context of locative art will be explored in later chapters.

Most of the case studies I will be examining in the following chapter intend, with a range of modes and intentions, to capture (in all senses) the peculiarity of embodied electronic exchange and the complexity of Mitchell's "mutually transforming embrace" ("Me" 129). In this way, the works will serve as replies to the determinist theories of disembodiment and urban dissolution cited here.

Chapter 2

Methodology and Case Studies

One of locative art's defining characteristics is its inextricable connection to the area of its execution - the immediate performance/surveillance environment and movements of users/participants in that environment often effect the real-time experience of the work. In this regard, any after-the-fact description occurring outside the place and time-span of the work's happening is necessarily limited.

The fact that South Africa has, so far, not experienced any local locative art means that my chosen case studies are sourced from areas outside of the country, and my examinations require some amount of imaginative reconstruction. In attempting to navigate these obstacles to my research, I will make use of as much surrounding material as possible, including Internet documentation, artist statements, accounts of user experiences and, where possible, original interview material.

Categorization of Locative Art

While locative art is still a nascent area of production, categories of practice and theoretical trends have already emerged. At the "Mobile Research" section of "Netzwissenschaft", a collection of links to locative art projects fall under the broad heading of "mobile art", and are sub-categorized according to their primary medium or method (such as "locative video" or "locative text"). For my purposes, a form of locative art categorization that considers creation motivation, like the one provided by authors Marc Tuters and Kazys Varnelis, proves more useful. In their essay "Beyond Locative Media" (2006), Tuters and Varnelis argue that locative art can be categorized under two main types, either "annotative" or "phenomenological" (359).

The annotative approach uses location-aware technology to 'embed' digital information (often some combination of text, images and audio) in a landscape, creating a 'layer' of

media accessible by a mobile phone, laptop computer or other location-sensitive device. Sometimes this layer is invisible until detected by the appropriate device, and sometimes it is physically marked. The artistic goals of these 'annotative' projects are varied - some assume what Drew Hemment has called a "documentary" approach (3), seeking to capture something of the individual's immediate experience of a contemporary environment. Others use digital media to build fictional or narrative elements around an existing space. These projects are sometimes referred to as "augmented reality" works – their experience is contingent on actual presence in an environment as opposed to digital representation or reference. Tuters and Varnelis liken the annotative approach to the Situationist practice of "detourement" – both attempted to alter the world "by adding data to it" (Tuters and Varnelis 359).

The "phenomenological" category includes locative projects that, rather than augmenting an environment, are more concerned with recording and representing the movement and activity that occurs within a certain space. Their perspective is markedly different to the first-person approach of the "annotative" locative works – they tend to assume a satellite's–eye view of space, often approximating (if not simply using) the language of cartography. The understanding of space and presence in these works is frequently mediated through some kind of interface or representational device. Phenomenological projects frequently make use of mobile phones, which have became commonplace enough to allow samples of their user-base to serve as a model of the average urban citizen. Tuters and Varnelis compare this to the Situationist activity of "derive", the practice of "a technique of rapid passage through varied ambiances", literally translated as "drifting" (Tuters and Varnelis 359).

Ghosts in the Machine

The first of my case studies, Teri Rueb's "Trace", fits best into the 'annotative' category. In its 1999 instantiation, "Trace" took place in a geographic area that might seem remote from the notion of electronic information exchange – a series of hiking trails near Yoho National Park in British Columbia.

To take part in “Trace”, the user would have had to don a knapsack containing a GPS device interfaced with a Macintosh G3 laptop computer. When the user passed through certain points along the trail, the GPS device recorded their co-ordinates and triggered one of the many location-specific “memorial” sound files on the computer, heard through headphones. This database of recorded poems and sounds all relate to themes of “time, memory and mortality”, according to Rueb. Contributors may submit their own recorded memorials in advance, and choose a corresponding point along the trail (Rueb, “Trace”).

“Trace” investigates the metaphor of computer as device of bodily escape, identity transference and memory storage, finding analogues between the cemetery and the information network. The artist describes the computer as representing “our desire for the indestructible, immortal vessel”, allowing us to digitally preserve the traces of our presence (“Trace”). Like the digital theorists of the mid-90s, Rueb links the bodily transcendence of religious reverie with the fantasy of computer-assisted corporeal escape, but, through the addition of a subtle irony, acknowledges the impossibility of both. Rueb’s digital afterlife is composed of whispers and .wav files, and presented as a hidden spiritual realm mediated not by divine intervention, but by technology. “Trace” establishes a peculiar relationship between user and device – the artist seems to want to invest her technology with a quasi-religious intensity. As Rueb says in the accompanying paper, the work is an exploration of the relationship between “memory storage technologies" and "death, loss and bereavement" (“Trace”). By aligning the myth of cyberspatial infinity with the notion of spiritual eternity, both are presented as tragically unattainable longings.

The serene space invites ghostly musings, but without visible markers – there are no headstones – rather, the audio recordings function as momentary memorials. The linking of location and artefact, for Rueb, allows for the presentation of landscape as “spatialized narrative” (“Trace”). This is common of ‘annotative’ locative art – the desire to shape the otherwise amorphous (or, at least, unadorned) experience of travel into the navigation of mediated milestones, narrative edges that shape one’s journey. The fact that this journey

involves more of the body than the coordination of hand and eye is an innovation in a digital culture largely based on screen-based interaction. For the artist, it is an opportunity to introduce new modes to the discourse. In the paper accompanying "Trace", Rueb says she is interested in exploring "alternative aesthetics" that counter the "ocular- and phallo-centricity" of both the conservative Western monument and digital technologies ("Trace"). In a significant break with virtual reality's simulation of movement through primarily visual techniques, "Trace" emphasises actual physical activity, citing as inspiration the Aboriginal practice of walking the landscape while singing traditional songs. Location-aware media allows Rueb to reconnect distinctly embodied experiences with digital media – she says that the continuing goal that both pervades and politicizes her works is to "bring participants back into direct physical encounter with place and the body". She is concerned in reconciling, with self-proclaimed irony, the tools of "rational technological science" with "humanist and phenomenological constructions of space, place and identity".

The division that Rueb expresses here – the perceived gulf between technology and humanism, science and space – is a key concern in locative art and its debates.

In his essay, entitled "Locative Art", Hemment points out that locative art's genuine engagement with notions of embodiment and physicality is not entirely implied by its technological capacity – indeed, the limitations of the technology lead to what Hemment terms a "constrained understanding of spatiality", with the understanding of location reduced to "a set of geographic coordinates"(Hemment 3). Hemment hopes for locative art that engages the context-specific relationship of people and their environment - one that "exceed[s] the sterile precision of its own axiomatic system", engaging the "dirt, sweat and smells" of the material world, acknowledging "air pollution" and "ambiguity" (Hemment 6).

Similarly, Rueb has said in our E-mail interview that she feels that the "machine-centric" understanding of location is still the prevailing one – "while the proliferation of content to be delivered in real-space mobile networks can be seen as an increasing sensitivity to

the need for physical and virtual space to be better integrated", she says, "[it is] still not clear that these artifacts have become easier to comprehend for presenting a coherent "environmental image", nor that they seek to understand everyday lived space first before translating it into networked overlays.

Rueb suggests that a humanist approach to location sensitive technology would require the collaborative "handshake" of "architects, urban planners, landscape architects, network designers and mobile media content creators". Mirroring Hemment's concerns, Rueb feels that locative art is in danger of rendering site and community as "a sort of commodity", reduced to "interchangeable *data sets"* that can be "plugged into the overall infrastructure" of locative projects.

Rueb questions locative art's own utopian impulses – the promise of a "re-inscription of the real", she feels, is not the necessary consequence of location-sensitive technology. "Trace" retains this healthy mistrust of digital hype - in its electronic augmentation of the landscape, it plays with the meanings bestowed upon digital information by our metaphoric systems.

Another of Rueb's works – "The Choreography of Everyday Movement" (hereafter referred to as "Choreography"), fits reasonably well under the previously identified "phenomenological" category of locative art production. In "Choreography", participants (for the showing at SIGGRAPH Gallery in 2001, these were a group of dancers) are tracked with GPS receivers as they move around the urban environment of Baltimore. Their movements are translated into an animated line-drawing – we see a top-down view of the participant as a black dot, leaving behind a trail of her travels through the urban space. The movement was relayed through an Internet application. Finally, the line drawings are transferred onto glass acetate, and stacked one in front of the other – giving the drawings a quality of depth, and allowing for what Rueb terms a "z-axis", a representation of movement through time ("Choreography").

Like much locative art, the work straddles the artistic boundaries been public intervention and gallery installation - the presented work involves both the projected display of the movement-tracking application in action, as well as the stacked glass layers.

The work again expresses Rueb's ironic vision of the meeting of technological strictness and human unpredictability. Its methods are at once systematic (employing the mechanisms of surveillance) and erratic (subject to the whims of the tracked individual). This paradox is reinforced visually – the images produced by the work resemble the loose, uncontrolled mark-making of the Surrealist practice of 'automatic drawing', though the automation in "Choreography" is less a product of the subconscious mind than of the programmed interpretation of coordinate information. Rueb describes the piece's approach to movement tracking as an attempt to "privilege the poetic over the indexical" – it transforms a tool of surveillance from an instrument of control to one of spontaneous creativity ("Artist Statement").

Her affinity for nature and natural process appears again in "Choreography", though perhaps not manifested as obviously as they are in "Trace" – the accumulation of minute linear variations, Rueb indicates, "mimic[s] the level of physical detail found in the natural world" ("Artist Statement"). In this way, "Choreography" suggests that even the aesthetics of digital location-tracking can help uncover unseen relationships between technology, movement and the physical environment.

Unlike "Choreography"s relatively modest tracking system, involving a group of select individuals, many locative artists have seized upon the technological possibility of large-scale movement tracking to reimagine mapmaking as a dynamic, real-time process: city space as a flurry of electronic activity, momentary signals generating traces and tags.

Hertzian Space and Urban Mapping

"Mobile Landscapes: Graz in Real Time" (2005) (hereafter referred to as "Mobile Landscapes") shares this interest in generating a new urban cartography, using the

cellular phone as an indicator of presence in their real-time visualizations of a city environment in flux. The project, created by Carlo Ratti, Andres Sevtsuk and Sonya Huang aims to represent the Austrian city of Graz through monitoring its cellular phone 'traffic' – users who have allowed their mobile phone to be tracked by the system. The "Mobile Landscapes" 'user'/citizen becomes a hybrid creature, its electronic identity constituted by the use of a location-sensitive device.

"Mobile Landscapes" collects three varieties of location-centric data, which are then represented visually in three different animated maps (created using Macromedia Flash). The first of these maps is akin to those used to represent weather patterns – tracking Graz's "cellular traffic", data appears in swells of colour, with white representing the areas of highest intensity, fading into green or back for areas of lower use. A street and river map of Graz is visually superimposed on these images, contextualizing them.

The second map is a visualization of "traffic migration" – the process of "handover" switching of network cells as the user moves through the city. Data is collected over 24 hours, and then animated at an accelerated rate over 15 minute cycles. For every "handover", an orange line is drawn from the point of origin to its destination. Cells are chosen randomly, with all the phone calls rendered for a 15-minute session.

The third map tracks the movements of registered individuals through Graz – their location is updated in five minutes intervals, with an orange line tracing their paths (Ratti, et al. 6).

The dynamic images produced by "Mobile Landscapes" differ wildly from those of the conventional map. The map measuring cell phone traffic consists of slowly fading iridescent blobs of colour. The movement tracking map shows geographic boundaries splintered into discrete zones – a landscape fractured by signals and scored by movement. The Graz maps offer more than a record of urban movement – they reveal the landscape as a space of rapid and continuous data flow. Here we see digital information guiding motion and producing connection through urban space, illustrating how everyday life is

imbued with electronic information exchange. In these maps it is purposefully unclear if the primary actor is the human citizen or his mobile extension, and the conclusion it suggests is that the contemporary urban city is a product of the co-operation of both entities.

Above all, “Mobile Landscapes” makes apparent a crucial phenomenon ignored by scores of digital theorists during the virtual heyday – the acknowledgement that all digital activity has a physical manifestation and produces real-world effects.

As with numerous other locative projects, issues of privacy and control invariably arise. “Mobile Landscapes” attempts to address these concerns by allowing its users “full control” (Ratti, et al. 4) over their status as tracked entities (they can subscribe and subscribe at any time by sending an SMS to the network). Through allowing this measure of control, the project might be said to lose some measure of veracity in its representations of urban activity – though, as Drew Hemment suggests, locative art perhaps too frequently assumes an uncomplicated relationship between data co-ordinates and real-world individuals. The artistic power, Hemment suggests, lies in the interpretation of the spatial connection allowed by location-tracking device (6). “Mobile Landscapes” is less interesting if the emphasis falls on “real” – the work makes numerous aesthetic decisions in its treatment of time and location data. If the project’s central concern seems to be the representation of a largely invisible process - an alternative view of the city, mapped by the actions and movements of its subjects - then its artistic success relies on more than technology accuracy. “Mobile Landscapes” begins with information sourced from ‘real-world’ space, and then filters that information through a unique visual language to represent an alternative geographic reality.

This ‘new’ space explored by “Mobile Landscapes” is often referred to as “Hertzian” space (a term coined by industrial theorist Anthony Dunne) (“Wi-Fi”, 2). William J. Mitchell defines the “Hertzian landscape” as “an increasingly dense, multilayered cocoon” of “network access points, relay points, and channels”. It is constituted by “hotspots and deadspots”, “exposed areas” and “overloaded cells”. “Mobile Landscapes”,

and locative works like it, are concerned with visualizing this "intricate, invisible" realm. Its presence is indicated by the occasional semi-obscured antenna, wireless-enabled laptop and, of course, mobile phone, but its actual functioning is entirely hidden from view (Mitchell, "Me" 55). One of the potential uses of locative media might be to allow us a less abstract experience of Hertzian space, bringing us closer to understanding how our environments are interpenetrated by electronic data. When Hertzian nodes are uncovered, data can be again understood as a physical event.

In Usman Haque, Bengt Sjölén and Adam Somlai-Fischer's proposed project "Wifi Camera Obscura" and Somlai-Fischer's "Aether Induction House", Hertzian space is engaged directly. The "Wifi Camera Obscura" is built on the premise that, as the beginning of the industrial age brought with it the technological possibilities of using electromagnetic waves (in the form of visible light) as a medium for recording and representing, so our current climate, filled with "non-visual electromagnetic fields" (namely, the invisible effects of wi-fi networks) might require new creative and responsive visualization strategies ("Camera" 1). Using the camera obscura as an example of one the earliest visual recording technologies, the project aims to interpret 2.4 GHz Wi-Fi waves. The artistic renderings of the intended product of "Wifi Camera Obscura" show photographic images obscured by wispy flashes of blurry light and colour. The effect is pseudo-mystical in appearance, which seems to befit a project that visualizes invisible, ethereal processes. Perhaps the most appropriate precedent for these pictures are those produced by so-called "Kirlian"[7] photography – both provide a kind of supernatural thrill, here revealing our frequent perception of electronic information as alien and 'other'. Depending on its final realization, "Wifi Camera Obscura" has the potential to either deflate or exacerbate such notions.

Somlai-Fischer's "Induction House" shares the goal of physically manifesting Hertzian space, but not only through visual means. Somlai-Fischer creates architectural spaces that respond directly to the magnetic fields around them. The first version of "Induction

[7] Kirlian photography originates from the work of Semyon Kirlian, an electrical technician who, after the recording and study of images generated with high-voltage electronics, believed he could photograph human "auras" (**Kruszelnicki, Karl)**

House" (created in 2003) involved a prototype model for an interactive architectural interface that used the magnetism surrounding mobile phones to affect the electric "climate" of the area, causing the corresponding colour temperature to be projected onto a steel surface. Though "Induction House" uses colour and temperature as mediating concepts to relate the relationship between electronic data and physical effect, the results are more causal than metaphorical – the magnetic properties of mobile phones are not Somlai-Fischer's invention, but he chooses to manifest those properties in a tangible interface.

Julian Bleeker's "WiFiKu" playfully marries the linguistic tags of Hertzian space with a much older form of location description – the project involves digitally scanning for the names of public and personal Wi-Fi "Hot Spots" (places where Wi-Fi network access is available) and rearranging them into Haikus. The Haiku form was chosen partially for its "brevity"and "lack of rhyme", but also because their characteristic subject matter ("descriptions of location, natural phenomena, everyday occurrences") ("Wifiku") are so well suited to the locative medium.

While "WiFiKu" is perhaps the only strictly locative work amongst these projects, their attempts to analyze and manipulate Hertzian space reinforce my central argument that we are increasingly aware that electronic data is itself a physical entity. Virtual Reality theory, with its emphasis on the visual as a marker of the real, frequently mistook the invisibility of information exchange for a blank slate on which to project transformative fantasies of electronic salvation. Works such as "Wifi Camera Obscura", "Induction House" and "Mobile Landscapes", through visualizing the processes of information transfer, make it obvious that technology is not an alien force, nor does it offer a quasi-mystical transcendent escape – it is a product of physical reality, and anchored to its boundaries.

"Mobile Landscapes" also signifies an attitudinal and technological shift that is common to locative art – as the borders between geography and data blur, so the locative artwork may rub shoulders with commercial, military and industrial applications. Though

supporting different outcomes (in the case of locative art, new media cultural intervention as opposed to data capture and surveillance), they share many of the same systems, technologies and strategies. Similar dilemmas were of course previously faced by Internet artists, though systems of control present in the World Wide Web perhaps appeared less centralized, while many of the tools used in locative art are charged with cultural associations of unwelcome governmental and commercial surveillance.

Geo-surveillance and Locative Control

This new approach is a frequent source of division among artists and theorists, who are often split between celebrating the new access allowed by the use of such powerful technologies and those who see the use of hardware owned and operated by governmental forces as a complicit surrender to the demands of military-industrial complex and a burgeoning "surveillance society". Theorist Brian Holmes sees in locative art an acknowledgement of the "hyper-rationalist grid of Imperial infrastructure" – its arrival marks the further integration of "civil society" into digital media's "military architecture" (qtd. In Tuters and Varnelis, 361).

For others, locative art can mark the way out of governmental regulation and informational imprisonment. As Tuters and Varnelis note, in the United Kingdom, where the government controls almost all geographic data, the availability of wireless and location-aware technology has encouraged individuals to attempt independent locative and map-based projects, in the name of free access to information (358). The now defunct "London Map" and currently active "OpenStreetMap" are just two examples of collaborative mapmaking that provides open-source location data.

Whether one subscribes to Holmes's Orwellian visions of state-controlled technological hegemony or to the assertion that society has some measure of self-determination in its use of digital media, we see that location-aware technology has its own strain of determinist thought.

In her essay “The Persistence of Surveillance: The Panoptic Potential of Locative Media”, Andrea Zeffiro cites a statement from the original locative media workshop which acknowledges these tensions - the duality between control and liberation - at the core of the locative movement. While recognizing theorist Paul Virilio’s insistence on the impossibility of “understand[ing] the development of information technology without understanding the evolution of military strategy” (qtd. in Zeffiro 1), the movement would still endeavor to “locate the event outside of the global market from which these technologies have emerged”. In the essay, Zeffiro grapples with the distinctions between locative art and “Location-Based Services (LBS)”, as used by military and corporate entities. She acknowledges the “different agenda” (Zeffiro 5) of locative artists, their general desire to “democratize accessibility to the tools and data generated via surveillance technologies” while underscoring the inability to truly escape the systems of control at the core of technologies – “the act of appropriation”, Zeffiro asserts, “necessitates assimilation” (Zeffiro 9).

Zeffiro insists that those making creative use of surveillance-based and government-owned technologies be critically aware of the operation of these media types in systems of social control and observation, and attempt to subvert this aspect of their function. She urges artists and practitioners of the medium to produce from a position of “located accountability”. Zeffiro sees in locative art the “radical potential” to disrupt this act of appropriation, “revealing its processes of production” (9). Her view of locative art practice is similar to the “Recombination” approach of Graham, stressing the understanding of the medium as “a process of social negotiation” incorporating “multiple actors” and “complex power relations” (Zeffiro 10).

While today’s ‘cyber citizens’ are perhaps no longer construed as post-corporeal beings, there remains the impression of technology as a large, impersonal force, with a clearly-definable impact (either beneficial or harmful) that is somehow formulated outside of lived reality. Any appraisal of locative art that is singular in its condemnation or exultation is deterministically ignoring the multiple, and constantly changing, possibilities of the media and medium.

Site Specificity

An early locative artwork that embraced a number of these multiple possibilities is "Sound Mapping", by artists Iain Mott, Marc Raszewski and Jim Sosnin.

"Sound Mapping" is a "mobile sound installation" that may be the most genuinely embodied of the locative projects, at least in terms of participants needing to exert greater physical influence than the holding of a "palm pilot" – it involves the wheeling around of four GPS-enhanced suitcases (sensitive to location, movement, and direction) that produce sound and music in response to both their own handling and their surrounding architectural environment.

"Sound Mapping" foregrounds an element of location-tracking surprisingly (and disappointingly) absent in many locative projects – a genuine site-specificity, in its sensitivity to the historical and architectural peculiarities of its environment. The premier performance of the work took place in 1998, at the Sullivan's Cove, in Hobart, Australia. Once a major port, the Cove is now primarily a leisure district, characterized by an influx of tourists in the summer months ("Sound Mapping"). "Sound Mapping" acknowledges this, and, through the acts of luggage-carting and guide-following, it turns its participants into multimedia, augmented-reality tourists. The audio content triggered and distorted by the suitcases is also tailored to the architectural character of the Cove, if sometimes only tangentially.

The modes of interactivity in "Sound Mapping" are multiple, and directly involve the body - different modes of physical performance utilize different data capturing technologies: the GPS device interfaces with the laptop computers to interpret "local algorithms written specifically for corresponding locations" (in order to discover the position of the participant, while motion sensors interpret gestural input (including "tilt, azimuth and forward and backward velocity") (Mott and Sosnin), allowing users to physically manipulate the audio material. The outcome of the work is a sort of

improvised audio-visual event – an evolving soundscape married to a site-specific bodily performance. The arguable artistic success of "Sound Mapping" – namely, its refusal to impose technological limits on the interaction between user and environment – highlight what perhaps has been lacking in later locative art. In the bulk of recent works, the adjective "location aware" might be more accurately phrased as "location-cognisant" – the satisfaction in a device's ability to report that an individual is at some point in some location regularly overtakes the artistic possibility for place-specific, local artistic interventions. In such cases, the supposed 'awareness' takes on a self-reflexive quality: we are aware of the presence of a functioning GPS instrument in an area, but are unsure of much else. Many locative projects could be staged in multiple locations with barely discernible results – in certain cases, the uniformity of digitally-enhanced urban experience might be the critical point itself, though in most others it signals only an awareness of absence.

The two 'progressive' modes of locative art I identify here – the focus on the uniqueness and individuality of local contexts and the critically-aware use of technology - might initially appear unconnected, even opposed. Greater emphasis placed on self-critical use of locative art's tools might be understood as a diversion from the goal of more nuanced response to concerns of place and presence. Yet "Sound Mapping" seems to manage both, using digital audio and a unique user-interface to recast GPS technology as a primarily bodily experience designed to occur around a specific location.

In an accompanying paper, the "Sound Mapping" artists assert their belief in sound installation (coupled with location-tracking) as a unique method of "reassert[ing] the matrix of time and space" and "anchoring" a metaphysical sound object to "the physical realities of life" (Mott and Sosnin). The artists consider it the responsibility of the digital-artmaking individual to address the "constructs and responsibilities" of physical existence, lamenting digital media's assumed detachment from physicality. "Sound Mapping" serves as a foil to Christine Boyer's suggestion that an increasingly mediated city is also one necessarily disconnected from its local history and social fabric – the

work uses new media to reassert the peculiarities of its chosen performance site. Instead of effacing the environment, it actively works within it.

As if to further dismiss Boyer's fears of forgotten urban materiality, some locative projects confront the physicality of their local environments so directly that they become a sort of community service. Exemplary here is "Canal Accessible", a project that invited 40 disabled participants to photograph wheelchair-and-disability-unfriendly obstacles in their locations using camera phones, and, using MMS (multimedia message service), send them to an online map of the area. The project took place in Barcelona, though several iterations were performed in other cities – in Madrid, images were generated by prostitutes, in Mexico, taxi drivers – all using mobile photography to document the peculiar difficulties of their daily life. Project information on the website is minimal, but the central function of the work is clear. "Canal Accessible" is less an art-minded project than a socially-minded photo gallery, but in its use of location-aware services to knit together specifically embodied concerns with cyberspace makes it a pertinent example of how real-world geography is re-entering digital discourse. As Jennifer Light suggested in "From City Space to Cyberspace", to embrace digital media is not to forgo social awareness responsibility.

Locative Narratives

Numerous locative works have used language and narration in attempts to humanize the digital – more pertinent to my argument, I believe, are works that invert this inclination, revealing a familiarity with the language and structure of digital media in ways that lead to alternative perceptions of ordinary geographic navigation, rather than cutely co-opting technology into existing modes.

"Urban Whispers", another audio-centric locative prototype project by Kristina Eschler, Urs Hugentobler, Stefan Kern and Anja Meyer, is not alone in its attempt to combine narrative storytelling with location-tracking – indeed, elements of the project resemble

Rueb's "Trace". "Urban Whispers", however, allows for an arguably more complex and contingent linking of narrativity and location-awareness.

In describing the potential working of their device, the aforementioned narrative samples are first collected in a database to be accessed by users equipped with a GPS and WiFi-enabled mobile device. The audio snippets are assigned attributes (based on 'activation region', 'topic' and 'storytelling characteristic') (Eschler, et al. 1) allowing them to form linked threads of shared relevance. Instead of simply accessing these samples at certain co-ordinates (as in "Trace"), the performance environment is assigned zones of shared narrative quality, forcing the user into patterns of movement based on the desire to either retain or shed narrative coherence.

To achieve this, the artists propose that their collection of urban experiences be broken down into discrete packets of information, or "smallest narrative units" (or "S.N.U"s) (Eschler, et al. 1). Though it is not clear exactly who or what will be charged with editing the audio recordings and assigning their appropriate values, the notion that the musings and memories of city-dwellers might be easily processed into 'taggable' bits suggests a kind of collective urban familiarity with the functioning of the network and the database, as if the modern city is incomplete and incoherent without being subject to technological administration. On the "Urban Whispers" website, the artists express a kinship with the Situationist desire to "unravel" the city (Eschler, et al. 1), and it is the precise nature of that unpicking that makes the project unique. Though still applying a rigid indexical system, "Urban Whispers" refreshingly reverses the subject under control – instead of location co-ordinates, it is the "uncertainties", "addictions", "dreams" and "pleasures" of urban life that are being classified (Eschler, et al. 1).

The source material for "Urban Whispers" will apparently be derived from web logs, making "Urban Whispers" a kind of counterpart to the "moblogging" phenomenon, whereby users update their blogs (which essentially online diaries, short for "web log")

via mobile phone[8] - another form, arguably, of locative practice. The increasing use of the blog as connection node to a larger local community and as a means to engender 'real-world' action is another example of the move away from the insularity of the Internet and a reconnection with the physical environment.

"Urban Whispers" does propose an alternate reality, but it is not a bodiless netherworld - it a space infused with narrative and linked by the experience of moving through urban geography.

"Hopstory" - a collaborative effort between the Storynetworks group at MLE and Trinity College Dublin "NTRG" and "DSG" research groups - might be described as the mid-point between Teri Rueb's "Trace" and "Urban Whispers" – it uses a fractured narrative made up of cinematic "scenes" that are embedded in a specific location, users are able to reconstruct (or "edit", as the project's website uses) (Nisi, "Valentina Nisi") the story while moving through space. The use of the Guinness Hopstore building in Dublin is not arbitrary – at the time of the work's construction, it was the host site for MIT's "MediaLabEurope" research centre. The narrative is set in the 1930s and consists of the story of four fictional characters who spend their day in the brewery. The story is divided into multiple character-based perspectives, and these are made accessible at corresponding points around the location. Hopstory's interface is unique – it involves the use of "iButtons" – these are described as "metal canisters the size of a coin" that "store small amounts of digital information". These were handed out to an audience before the 'performance' of the work. The receptors for these devices are "small metal contact points" which were embedded in a series of sculptures (of cats) positioned around the location. The receptors, in turn, were plugged into the serial ports of six laptop computers attached to the cat sculptures. As an audience member encountered and engaged with the sculpture, data was uploaded to the iButton and a "scene" was aquired. These individual scenes were tagged with a two-digit ID number indicating the time slot and location. The

[8] According to Whatis.com, a moblog (mobile blog) "is a blog that is maintained by using a mobile device such as a PDA (personal digital assistant) or cell phone. Currently, the most common way to update a moblog is by uploading files from a camera phone to an established blog". ("What is a moblog?")

corresponding video clips were then able to be played at the “playback station” (Nisi, et al. “Hopstory” 4).

Like “Urban Whispers”, linear narrative is disrupted and rearranged around physical space. The space of the individual characters are embodied by the participants – to access their story, the user needs to assume their physical perspective. This is perhaps the chief innovation of “Hopstory” – the direct correlation between interior psychology and exterior location. “Trace” certainly achieves something like this, though less directly: in “Hopstory”, we access digital media about, or inspired by, the same location in which it is embedded – its cinematic narrative becomes a kind of psychogeographic fiction. Body and story become uniquely meshed.

Locative Limits

Rob Lycett’s 2003 work “Re: Draw III” also makes use location-inspired text, but in a radically different manner to the previous works. Lycett’s critical approach in “Re: Draw III” is perhaps the most convincing artistic answer yet to Hemment’s concerns about locative art shying away from the physical limits of its technologies. Lycett’s work inverts conventional GPS use, instead exploring “the graphic potential of GPS ‘noise’”(Lycett) – rather than adhering to the intended use of locative media,” Re:Draw III” exploits the seams in the GPS system, graphically recording the glitches, switches and surprises in the system. Using data captured from the changing signal strengths of satellites and uncertain atmospheric conditions, Re:Draw III creates dynamic text and shape collages, using writings of the artist made in response to the site. For its exhibition in the Futuresonic 2006, the work used data collected around the site of the 1819 ‘Peterloo Massacre’ to visually distort Lycett’s text, sourced from writing that he made while walking around the area (Lycett).

In actively confronting the inconsistencies and ambiguities of locative media – mostly ignored or downplayed in other projects – Lycett foregrounds the materiality of information exchange, generating imagery that reflects the unstable (yet constant)

combination of mechanical process and organic systems. While the visuals in “Re:Draw III” bear little resemblance to any manner of conventional location representation system, the floating shards of fragmented text convey a continuous intensity that in some ways speak to the genuine complexity of embodied environmental experience.

“Re:draw III” might represent the next phase of locative art, where the novelty of the technology erodes and is replaced by a more penetrating examination of the socio-cultural function of location-aware devices, including an acknowledgement of their limits and potential failures.

If awareness of technological limit is indeed necessary for the artistic progression of location-aware media, then one work stands as an exemplary example of locative art’s challenge to define itself as more than “software development”, to quote Tuters and Varnelis (375).

“.Walk” (created by unnamed collective “Social Fiction”) is essentially no-tech: it consists of a series of instructions - written like directions to a friend’s home translated into the language of rudimentary computer programming – that tell participants to navigate physical space in a certain manner. Clearly drawing from the previously mentioned Situationist ‘derive’, it retains the playfulness of the notion, but contains a subtle critique of the possibility of technological transcendence, affirming the uncertainty of physical experience. The apparent mathematical order of the simple textual instructions threaten to turn the user into a subservient cyborg, though the obvious chaos and unpredictability of the “.walk” as performed in the real-world lends the work an ironic edge. The work also highlights the disparity between digital planning and real-world execution, the vast experiential gap between programmed directives and spatial occurrences. Like “Re:Draw III”, “.walk” is almost a parody of process – it emphasises what it most frequently lost in translation when technology and reality meet.

“.Walk” also foregrounds the notion that locative art isn’t simply the consequence of technological advance, and suggests that the practice might not necessarily require any

hardware beyond that already present on the average human being. If we accept ".Walk" as a locative artwork, the qualifying characteristics of the practice then become more subtle and intuitive – perhaps it is the manifested awareness of the interpenetration of modern geography with electronic information, coupled with an exploratory attitude towards notions of presence in an environment.

Though varied in experience, aesthetic and intention, the shared quality of these locative works are their formulation and disruption of realities that are less simply 'virtual' than actual, engaged with the physical world on multiple levels.

The annotative works don't aim to supplant their geographic locations, but instead suggest some further enhancement, exploration or disruption that somehow alters the user's experience and/or understanding of her space. The phenomenological works display the physical impact of electronic data in our environments and our lives, and reveal how we navigate this hybrid space. Rather than reduce notions of spatial being to the simulation of three dimensions using visual hardware, the best of these locative artworks leave us with an expanded notion of both geography and self.

Chapter 3

Locative Artwork - "Tree ID"

In investigating the local context of my research area, it has become apparent that the necessary location-sensitive technology and surrounding user-base is abundant, yet artistic use of (and response to) the potential locative demographic has not yet been attempted in South Africa. In the cellular phone, one has what is probably the first example of a digital communications technology in South Africa that can hold somewhat genuine claim to a democratic outreach. While the most sophisticated of cellular phone technology remains the preserve of the affluent, the obsolescence and replacement cycle of these devices is rapid – relatively new models reach users on the lower economic rungs with considerable speed. Even camera-enabled phones – only recently the preserve of the mobile elite – are now entering entry-level price ranges. With all this considered, the medium, its ubiquity and societal effect seem ripe for a local locative art intervention.

My presented locative work, "Tree ID" intends to expose (in multiple ways) a particular element of the obscured relationship between technology and South African society, in the process promoting location-specific creativity, discovery and debate.

Function of "Tree ID"

"Tree ID" invites South African users to search their environment for cellular phone network antenna masts disguised as trees, and either comment on their discovery via SMS[9] or photograph the disguised mast using their cellphone cameras, and send the image via MMS[10] to a designated number. Users may also send a text message relating to

[9] SMS stands for "Short Message Service". The service allows users to type in text using their cellphone keypad, and send them to a central server, which then normally forwards them to the recipient. (Gow and Smith, 65) In the case of Tree ID, the messages will be forwarded to a server, to be parsed by a software application.

[10] MMS stands for "Multimedia Messaging Service, which offers the ability to send colour graphics and short video clips. The images contained in these messages will be parsed by the same application as the SMS messages, with the image data separated from the text data.

the tree and its location via SMS to the same number. The user then receives a return SMS asking them if they agree to send their location data. If they answer affirmatively, their image and/or text is sent to an online database and is placed on the online map interface at the corresponding point. Location is assessed by triangulating the user's position based on the nearest three cellular antenna, and is received as the numerical values of the user's longitude and latitude. The images are accessible through on an online map of South Africa, created using a customized alteration of the Google Maps service. The locations of the areas that have been photographed or commented on are marked by a blue upside-down teardrop shape - clicking on this marker brings up the photo or text comment generated at that point.

The website is currently viewable at http://www.treeid.org.za.

Realization of the Work

After the initial conceptual phase of the work - knowing that I wanted to create a work using cellular phone photography with embedded location data – several obstacles presented themselves. Though I was aware that cellular tracking and location-aware services existed, I knew them only as optional security features of cellphones or as services that, once subscribed to, were able to inform certain, specified individuals of your location (such as Vodacom's "Look4Me" service). I wasn't sure how large-scale location-tracking would be possible. Additionally, it was unclear if location data was transmittable via SMS or MMS and/or what kind of system would be needed to parse these messages, extract the location data and submit the accompanying images and text to an online database. It was clear from the outset that a collaborative relationship with a communications-based company would be required to realize the work. My supervisor put me in touch with Gustav Praekelt, co-founder of Praekelt Consulting. Fortunately and fortuitously, Praekelt Consulting were already developing similar location-tracking technology for a commercial project, and so agreed to help resolve my technical requirements at the points where my needs and those of the commercial client intersected.

To achieve location-awareness, Praekelt made use of services provided by Integrat. Integrat's "HiGate" server technology allows for location based services, or LBS. When an MMS or SMS in sent from the user's cellphone to the specified number, the message is routed from the SMSC (Short Message Service Center) to a Praekelt Java application. The application sends the SMS/MMS data to the HiGate server, which returns location co-ordinates, in the form of longitude and latitude. This data is used to position the submitted image or text on the Google Maps interface presented on the website homepage. The data is stored on a server, maintained by Praekelt.

The co-operation and collaboration necessary for this project is, I feel, indicative of the state (or at least potential state) of locative art in South Africa. The enabling services are often prohibitively expensive for individual use, and the precise technology involved is not often well understood. Until the vocabulary of location-awareness becomes relatively common, and the demand for the surrounding technology becomes great enough, it seems the locative art will need to navigate a telecommunications terrain that currently requires subscription services and likely corporate and commercial involvement.

Conceptual Background

As mentioned in the previous chapter, the "Hertzian" space of electronic data exchange has few physical manifestations – antennas and satellite dishes amongst them – and even these, for the most part, are partially hidden from public view. The proliferation of cellular phone usage in South Africa[11] has required communications providers to integrate the accompanying technology (namely, the large, metal, antenna-housing masts) into the urban landscape in a relatively unobtrusive manner, and so a unique method of obfuscation was devised – they were disguised as trees. Johannesburg is a largely forested area, and various indigenous and exotic trees populate much of the city. An awareness of the conditions of the natural environment proved key in formulating a method for the camouflage of the antenna masts. The disguise minimized the

[11] According to ITWeb, "The telecoms industry in SA has grown by an estimated 44% during the 2005/6 financial year".

obtrusiveness of the towers, and the friendly shape of a tree served to assuage potential public protest. As Brolaz (the company which originated and manufactured the first of these trees) state on their website, "the rapid growth of the local cellular industry and the related erection of cellular antenna masts have resulted in the need for cellular network operators to increasingly consider the aesthetic impact of these structures, to avoid negative public pressure".

In a recorded interview with Brolaz Marketing Manager Thinus van Staden, I was informed that the first camouflaged tree was created in order to assuage an uncooperative landowner who refused to allow the construction of an antenna mast on his property. In addition to a shared dislike of the aesthetic impact of the looming structures, the general demand for large-scale mast disguise was no doubt stoked by the still-present suspicions of the hazardous effects of radiation emitted from the towers[12] (based, van Staden claims, on American studies that analyzed analog equipment with significantly higher radiation output than is emitted by the GSM antennas used in South Africa).

The practice of disguising network machinery as organic plant-life seems at once a testament to Graham's theory of the "co-evolution" of technology and the social conditions which house it, and a subtle subversion of it. In blurring the lines between naturally-occurring phenomena and man-made 'intrusions', these faux-fauna have the effect of calling into question the authenticity (and, inversely, the artificiality) of both parties – are the exotic trees that dot the South African landscape necessarily 'realer' than their fiberglass doubles? Is the local landscape not already so marked and manipulated by the demands of industry and commerce that ersatz trees might be better suited to it than genuine ones?

However readily the fake trees are being absorbed into our environment, there remains a decidedly sinister element to the practice – the subtlety of detail applied to many of these

[12] An article titled "Electromagnetic fields and public health: mobile telephones and their base stations" on the World Health Organization website concludes that "none of the recent reviews have concluded that exposure to the RF fields from mobile phones or their base stations causes any adverse health consequence" ("World Health Organization")

trees is remarkable, making certain not only that the type matches that of the other, 'actual' trees in the area, but also modifying the colour and size of each individual model to suit the local environs. The smallest details are considered, from the tint of the leaves and the texture of their bark, and, perhaps most surprising of all, these effects are (at least in the case of manufacturers employed by the Brolaz company) hand-painted by a team of trained employees. The effort expended in creating these camouflage devices suggests that the meeting of environment and technology requires not so much mutual communication and cooperation as the application of artful deception.

In further investigating this notion, however, I came to realize that unmitigated deceit doesn't seem to be the motive behind the tree diguises. In our interview, Van Staden emphasised that the camouflage effect is not intended to disguise to the point of being completely undetectable. Indeed, he suggested, companies requesting complete concealment of a tower risk an adverse reception from a public who might feel as if they are being deliberately conned, raising further anxiety around the potential danger of the antennas and their supposed reasons for their disguise. When Van Staden states that the camouflage effect is not used to "fool people", the claim seems paradoxical, especially when Van Staden later boasts of the superior realism of Brolaz's trees as opposed to those manufactured by their competitors. What seems to be under dispute is the nature of the 'fooling'- the tree disguises are meant to trick the casual glance, and blend as realistically as possible into the natural surroundings, yet reveal themselves under closer scrutiny. This precarious balance between mollification and subterfuge, and the validity of Van Staden's expressed distinctions between the two, is partially what my project aims to uncover.

Van Staden also cited further examples in which disguise is a secondary characteristic of the tree designs – for one tree mast housing produced for use in Dubai, the emblematic potential of a perfectible, though obviously artificial, tree took precedence over the potential for environmental integration. In the construction of this tree, the number of palm 'fronds' and antenna-concealing fake dates were actually reduced to those of a requested ratio, despite Brolaz's concerns that this would reveal more of the workings of

the antenna equipment. Perhaps most importantly, the tree (based on a Phoenix Dactylifera) was so thin and tall as to be naturally impossible, almost comically so.

In other instances, any form of disguise or camouflage is unwanted. In certain poorer regions, Van Staden told me, the visible appearance of an obvious representative of technological capacity and advance - such as the cellular phone antennas - is desirable to the local population. Technology “brings a certain amount of prestige” to the community, Van Staden says, and they “would feel cheated” if its quality as a status symbol was denied them through camouflage.

Instances such as these complicate the notion of a uniform societal reaction – even in South Africa - to the visibility of technology. In all these cases, the cellular network tower seems to be more of a symbol than a piece of communications equipment, a health hazard or an eyesore (though it may be all of these things too). The presence of new forms in the environment may trigger feelings of a loss of control over one’s surroundings, a submission (or at least concession) to the alien forces of technology. At the same time, when the necessity of the services brought by such ostensible intrusions is perhaps felt more directly (where the gap between the awareness of technological capacity elsewhere and its local availability is more acute), newness is not threatening or sudden, but favoured, and needed. Camouflage might be used to pacify societal fear, or it might be inverted (as in the Dubai example) to rather flagrantly display a mastery over nature, and a control of the local surroundings.

One of the fundamental artistic goals of “Tree ID” is to increase the general awareness level around how technology interpenetrates our environment and, through imaging these intersections, how we might alter this relationship. In the exposure of the fake trees, it does not intend to impose judgment upon them – the aim is not a nostalgic return to an imagined past of uncomplicated natural purity. Rather, through a mapping process that links real-world locations with a networked media database, the work offers participants a strategy to represent and analyze these peculiar markers of techno-social intersection.

The project's use of the cellular phone camera in conjunction with short and multimedia message service technologies to document and critique the methods and means of their own functioning goes some way to address Drew Hemment's stated concerns about the self-aware use of locative mediums and the acknowledgement of their physical demands, limitations and (in this case) semi-comic manifestations. The project's functionality is partially the subject of its focus: over time, certain technical obstacles, even failures – if tied to problems with particular regions - may themselves be revealing documentation of the sometimes troubled meeting of geography and technology in South Africa.

Attempting to fit the work into the dual locative categories established in the previous chapter, it avoids obvious characterization, seeming to straddle the divide. The map format, satellite-sourced geographic imagery and partitioning of represented 'real world' space into nodes of digital information are hallmarks of the phenomenological brand of locative artmaking. However, the act of photographing the artificial trees allows for a unique, user-specific interpretation of the space that moves the project beyond the realm of data-capturing and, arguably, alters the location itself – closer, in this way, to the spirit of most annotative works. The project demands both the actual presence of the user in particular locations, and, consequently, the access of geographic information via an online interface.

The work's use and alteration of pre-existing "Google Maps" service aligns the work with the burgeoning trend of customized online mapping, frequently referred to as "mash ups"(Hof, "More Mash-ups with Google Maps"), a practice that might be said to run parallel to locative artmaking, and sometimes – as it does here – overlaps with it. These map mash-ups use services provided most frequently by either Google or Yahoo and somehow alter or personalize them. This practice serves to further illustrate the slippery division between locative art and commercial applications making use of location-linked technologies. In "Tree ID", however, the commercial aspect is subject to slight subversion – instead of advertising the location of nearest coffee shop (for instance), the uploaded images expose a service that would rather remain hidden.

Through the use of location-tagged MMS messages, the gap between online mapping services and location-aware media is bridged – the physical place and its cyberspatial representation meet in form of a digital photograph, a user-mediated visual representation of the connection between the physical and the virtual.

The creation of artificial nature in the service of communications technology might be understood as a reinterpretation of the notion of Virtual Reality, and there are noticeable parallels between the tree disguises and the effects of the original "VR". Both are simulations of physical realities that achieve their aims through optical trickery. Both can be read as expressions of certain utopian yearnings for a perfectable world – and are subsequently criticized for further removing our links to already-existing material environments through providing an increase in electronic mediation. As the 'mobilisation' of technology brings users into closer proximity with physical space and potentially disrupts outmoded ideas of the separation of the real from the virtual, "Camo Trees" (as the Brolaz website refers to them) stand as idiosyncratic icons of our complicated relationship with our constantly changing environment – simultaneously sending us to an imagined past and allowing for our technological future.

Chapter 4

Conclusion and Local Context

The first part of my research functioned as an exploration of a particular historical moment wherein cyberspace – an overloaded term that was stretched thin enough to cover both the optically three-dimensional world of headset-based 'Virtual Reality' and, later, the vast interconnections of the World Wide Web – was framed as a revolutionary development. Cyberspace would, according to a number of digital theorists, either save mankind from his desiring body or further remove us from an authentic experience of material reality.

Through visual simulation of movement, and then via networked communication, cyberspace supposedly eluded our physical constraints (first of the body, then of the nation). As headset-based virtual reality systems proved untenable (or undesirable) as a popular medium and the user-base of the Internet grew exponentially, local needs and realities began to reassert themselves. It seemed as if cyberspace, in its hype, had not so much resolved the problems of the material world as willfully ignored them.

This 'localization' of digital media occurs as a number of parallel technologies shift computing from the confines of the conventional desktop model to mobile mediums, and as global mapping technologies become more pervasive. The creative use of these location-aware technologies and the attendant emergence of a locative arts field have challenged not only the exaggerations of a decade's digital theory but also broader determinist attitudes towards technology and its effects.

Like any other singular technological development, locative media, as a movement, is not being proposed as a 'solution' to the problem of determinism. To do as much would be to align oneself with just such a determinist system of thought. Rather, through the creative and critically-minded application of location-aware technologies, we may be

made increasingly aware of the entangled nature of physical geography and digital information.

The case studies I cite, though employing multiple methods, strategies and technologies (or conscious lack thereof, in the case of ".walk"), are linked in their assertion of physical embodiment as a necessity for action in the world, be it the exchange of data over wireless networks or the movements of people through a particular space. And though the "phenomenological" and "annotative" categories proposed by Tuters and Varnelis prove useful in surveying the general landscape of locative art, the best of these works explore their conceptual fields beyond the initial application of either tagging or tracing.

The case studies I have examined are all, in some way, exceptional examples of their field. For every one of these genuinely innovative works, there exist any number of near-identical projects, replicating the technical function of object tagging, mapmaking and/or location-tracking, but missing the self-criticality, subversion or otherwise unique treatment of the implications of location-awareness present in the cited projects.[13]

Without critical awareness, locative art risks contributing to another wave of virtual hype – if a locative work's only anchor to material reality is the use of GPS-sourced co-ordinate points (for instance), we might again mistake a primarily visual reference to physical location for genuine embodied engagement with being and space, as VR's illusion of three dimensionality was once mistaken for a new reality. There remains an important distinction between works that emphasize the physicality of data as opposed to those that use of data as a reduced referent to physicality. In the case studies concerned with Hertzian space and, in some ways, in my "Tree ID" work, the understanding of electronic information as itself embodied is revealed as a key component in describing the contemporary experience of technology in lived reality.

[13] Some of these arguably uncritical projects include "GPS Diary" and "Art Works with Global Technologies", both of which simply reproduce GPS-generated movement paths as a form of original artwork, with minimal artistic intervention. They differ only in approach – "GPS Diary", as might be expected, is intended as a chronicle, a month-by-month collection of movement, while "Art Works with Global Technologies" sees "nature as canvas" and "movement as plot". Neither interrogate the processes of their creation, and present their location data without any extended exploration of personal or environmental context.

Many contemporary theorists continue to ignore this fact. Even when William J. Mitchell describes the reunification of atoms and bits (Mitchell 3), he retains the fundamental fallacy of assuming that the two were ever truly separate, and does so in a way that reasserts the notion of technology as a force for revolutionary change that acts upon society, rather than within it.

William J. Mitchell is accurate when he claims that we "are living our lives at the points where electronic information flows, mobile bodies and physical places intersect" (Mitchell 4), though he ascribes this to the "convergence" of "wireless technology with expanding network infrastructure", "miniaturized electronics" and "proliferating digital information" – these technological developments "radically refashioned" the relationship between the individual and his environment (Mitchell 3). The agency Mitchell gives the developments he describes is again a determinist one. If there is a developing consciousness accompanying the advent of location-aware technologies and mobile devices it is, as Stephen Graham would emphasize, the product of social and technological co-operation. As certain kinds of computing have become more intimate and accessible, this has induced an increased awareness of the entanglement of materiality and digital media, rather than the phenomenon being ascribed to a mysterious laboratorial, technological fusing of two previously distinct entities.

A resolute dissociation from the commercial realm was one of the founding principles of locative art, but the need for critical distance is perhaps more necessary than ever for the movement to remain vital as an art form, as the continued rise of mobile computing has seen locative art tactics become increasingly common in the commercial realm.

As the use of geo-mapping, GPS and wireless services and applications escalate, so artists will have (perhaps unprecedented) access to ever larger demographic swathes of the urban population – the challenge here is to creatively transcend the role of data-miners, actively engaging with the processes of information exchange, collection and transfer. As mapping and tracking technology becomes increasingly standardized, it will

be important for artists to remember that the geographies, environments and societies under analysis remain irreducibly unique – the neglect of environmental peculiarities in much locative art seems less ironic than simply indifferent.

It is also important for artists not to take the technical operation of location-aware devices as given – they should be critically cognizant of the systems, controls and languages involved in the equipment they use, remaining constantly aware of the medium through which the location-based content is being delivered. Works such as Rob Lycett's "Re:draw" seem to take these tasks to heart, subverting the expected use of GPS to use data gathered from system mistakes and malfunctions. In works like "Sound Mapping" and "Trace", content is connected to its place of activation.

In the preceding chapters, locative art is near-constantly challenged to define itself as more than an assembly of technology – in Lev Manovich's essay "The Poetics of Augmented Space", he positions "cellspace" (a precursor to locative media) as the vanguard of an art-historical movement that began as early as the 1910, wherein the art object moves ever-further away from the confines of the canvas/wall/gallery into the larger environment (Manovich 7 – 8). Though written before the advent of locative art, Manovich seems to suggest that whatever cellspace evolves into, it will firmly insert itself into public life, and on a larger scale than previously possible. Though Manovich describes cellspace as the result of the convergence of several parallel technologies, it seems important that its primary definition is social, not technical. In Marc Tuters and Kazys Varnelis's essay, the need of locative art to become more than software engineering is further emphasized (Tuters and Varnelis 359). In ".walk", computing exists in reference only – bits of code are haphazardly processed by humans as they perform a locative parody of digital control.

What then distinguishes locative art from previous 'real space' artistic forms (such as site specific performance art, or even certain forms of dance) is a shared interest in (usually, but not always, urban) space as a complex amalgamation of digital information and

physical boundary, sometimes providing connections at the points where the two seem most remote, sometimes revealing them as inseparable.

While my research has considered the role and function of locative art in the areas where the practice is most prevalent – America, Europe and United Kingdom - it seems almost certain that local locative art 'movements' will develop in countries where mobile technology is accessible, and people are aware of a reconfigured connection between physical space and digital data. As it grows internationally, locative art, by definition, should not remain unified in its objectives, experiments and tribulations – if it heeds the warnings of Drew Hemment, Marc Tuters and Kazys Vargelis and patterns itself on the examples included here, locative art should have numerous and varied global incarnations.

Locally, locative art can only be described speculatively, but it seems likely that its future development will be markedly different to that of existing international examples.

In South Africa, local realities inscribe the "digital divide" more visibly than in many other countries. Personal internet services are the preserve of a privileged few, and the quality and accessibility of telecommunications in rural areas is highly variable.

Issues of infrastructure and affordability have kept cyberspace so inaccessible as to immediately defuse any notions of it collectively redeeming the hungry and poor. Similarly, with large parts of the country relatively untouched by recent technological advance, apocalyptic theories of the dissolution of reality and social responsibility via a wave of electronic mediation seem equally implausible. The digital discourse outlined in the first chapter is largely incompatible with the South African experience of 'cyberspace'.

With the arrival of satellite and wireless technology and with the widespread availability of relative affordability of mobile phones, South Africa has seen a sharp rise in the number of citizens now able to participate directly in the digital discourse.[14]

The potential of locative media in South Africa is not so much in offering a re-inscription of 'the real' or a return from escapist fantasies – the country never participated in those dialogues. It seems that locative art might instead explore the consequences of digital technology and networked connection reaching a large segment of the population for the first time via mobile devices, specifically cellular phones. The tools most frequently used in locative art are the same ones enabling this local democratization of digital media – the relationship between creative works made with these mediums and the need for greater awareness of possibilities of these technologies is potentially a close one.

While the country has seen a number of innovative and successful uses of these technologies in the commercial and social realms[15], creative applications have been minimal. Initially - as is the case with my own work – locative art might need to rely on commercial and industrial uses of locative technologies to take advantage of their broader access and infrastructure (while hopefully remaining aware of this complicity).

South African locative art could encourage a nascent discourse around how technology interfaces with the local geography and society. My work, "Tree ID", intends to generates interest in the topic through the documentation of camouflaged cellular network towers - though their intent is to obscure, these idiosyncratic objects are immensely revealing of the South African relationship with technological progress. The fake trees are catalysts for the fears and hopes, both physical and metaphorical, that accompany technological newness. As a platform for the display of user-created location-based images and text, "Tree ID" will be, to my knowledge, the first self-identified South African locative

[14] Statistic state that 70.9% of the South African population currently use cellular communication ("ITWeb")

[15] One such initiative is "Themba Lethu Messaging System", the Praekelt Foundation's pilot project, which uses a reminder system based on SMS technology to ensure that patients at the Themba Lethu Clinic (the largest public clinic in South Africa) do not miss their appointments, or reminds them to reschedule (Praekelt).

artwork, and, perhaps more importantly, a forum to explore the future artistic use of mobile and locative media.

The locative medium might prove democratic in a way that desktop-based computing, in South Africa, could not.[16] Johannesburg seems particularly ripe for locative intervention – its citizens are of greatly varying cultural and economic backgrounds, and often live in relatively close proximity, yet generally experience little of the other's location. Place-based artmaking might narrow these social gaps by entreating people to venture outside their established surroundings, or by delivering digital content documenting unfamiliar territory to those previously unable or unwilling to go there. As the current closest technological counterpart South Africa has to locative practice is probably the tracking of stolen vehicles[17], locative art should also prove useful in expanding the medium beyond its arguably alienating identity as a security measure, towards a more probing, interrogatory approach to modes of movement, place and being in the country.

From the anonymity of early Internet use to Virtual Reality's promise of bodily transcendence, the digital technology of a decade ago seemed intentionally disconnected (and disconnecting) from material reality. Cyberspace's independence from place and release from the body beyond the eye, brain and hand were at once touted as virtues and cautioned as dangers – the most exaggeratedly optimistic and inflammatory of these views all sprung from anxieties that ultimately had little to do with the actual functioning of either the World Wide Web or "VR". Presently, the shrinking of desktop computing applications into laptops, mobile phones and wireless hotspots sees digital information becoming ever-more entangled with 'real space', and accompanying this propinquity has been a more intimate knowledge of how electronic data manifests itself physically. While some of the virtues of online anonymity, along with the fantasies of 'virtual' role-playing, remain, the contemporary digital discourse is more concerned with the links between digital reference and real-world location. Locative art is, perhaps, a symptom of this emergent trend, but also a critic of it. As the mechanisms of surveillance – mapping,

[16] At the end of 2002, only one in fifteen South Africans had access to the Internet ("World Wide Worx")
[17] South Africa has three major vehicle-tracking companies, which have "recovered 60 973 vehicles to date" (Chibba)

tracking and tagging – penetrate daily life with new force, and as we seem increasingly eager to take advantage of location-linked commercial and entertainment ventures, it seems important to interrogate the potential benefits and risks of location-aware technology and the hybrid spaces it documents. Locative art uses these technologies – or at least refers to them – as it explores the possibilities of human connection, environmental exploration, site transformation and social analysis, amongst others. The most successful of these works, I would argue, are the ones most aware of their own means and methods, retaining critical distance while seeking to expand our notions of place, body and digital information. In the face of ever-present determinist attitudes, the best that locative art might offer us is an expression of multiplicity, sourced from a range of localities – a sense of technology as (in many ways) partial, connected to and produced by the environments in which it finds itself.

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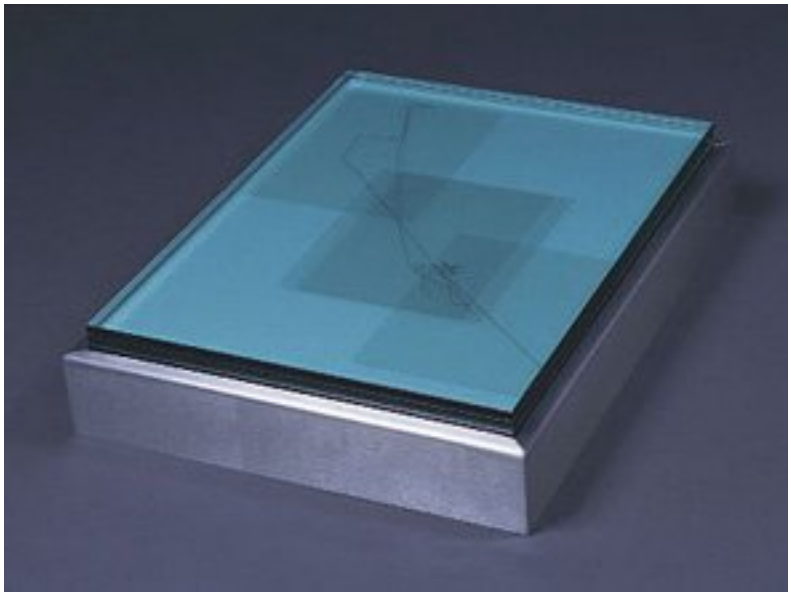

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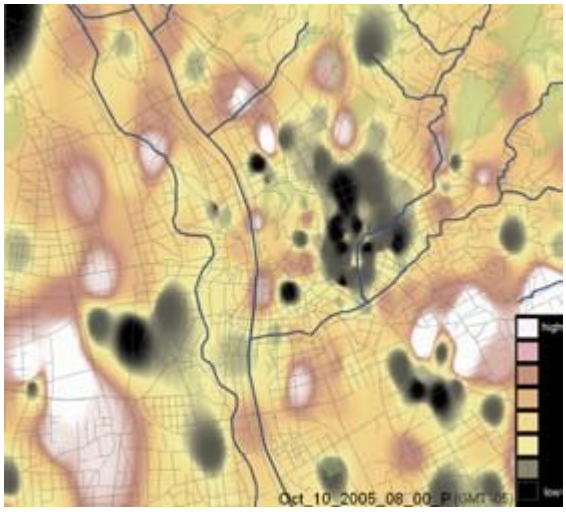

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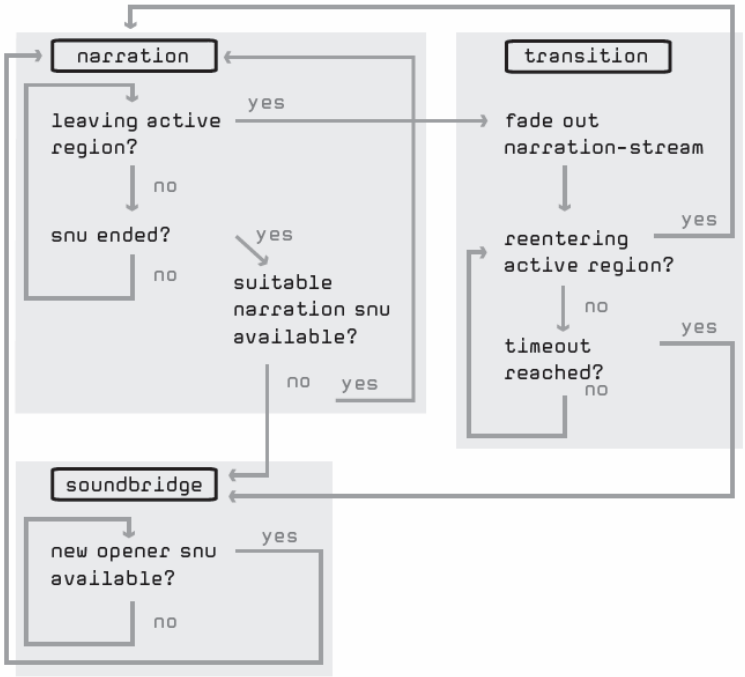

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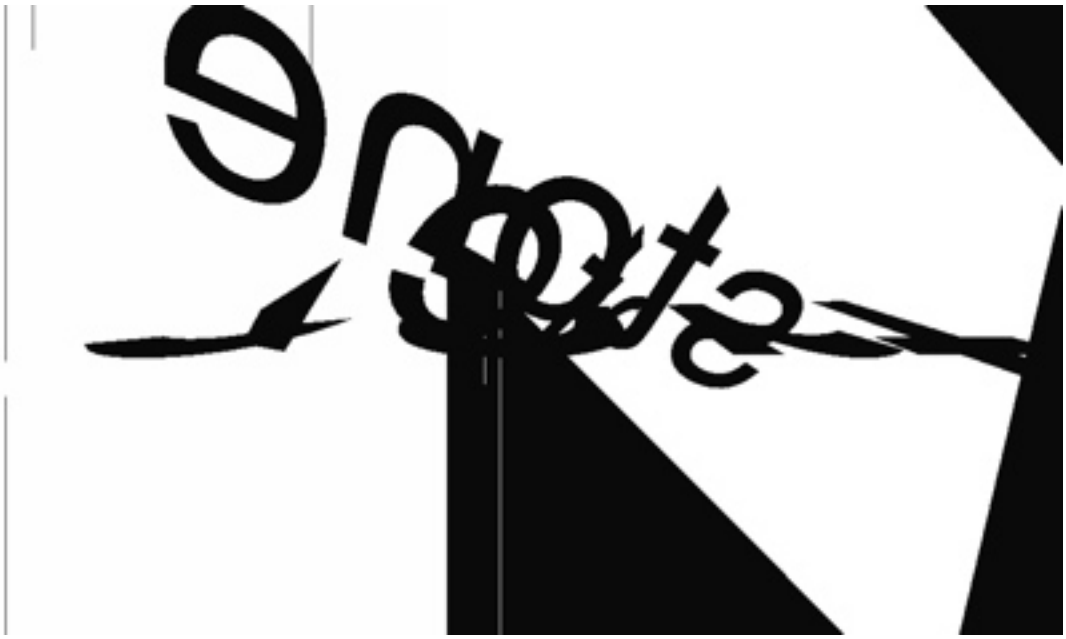

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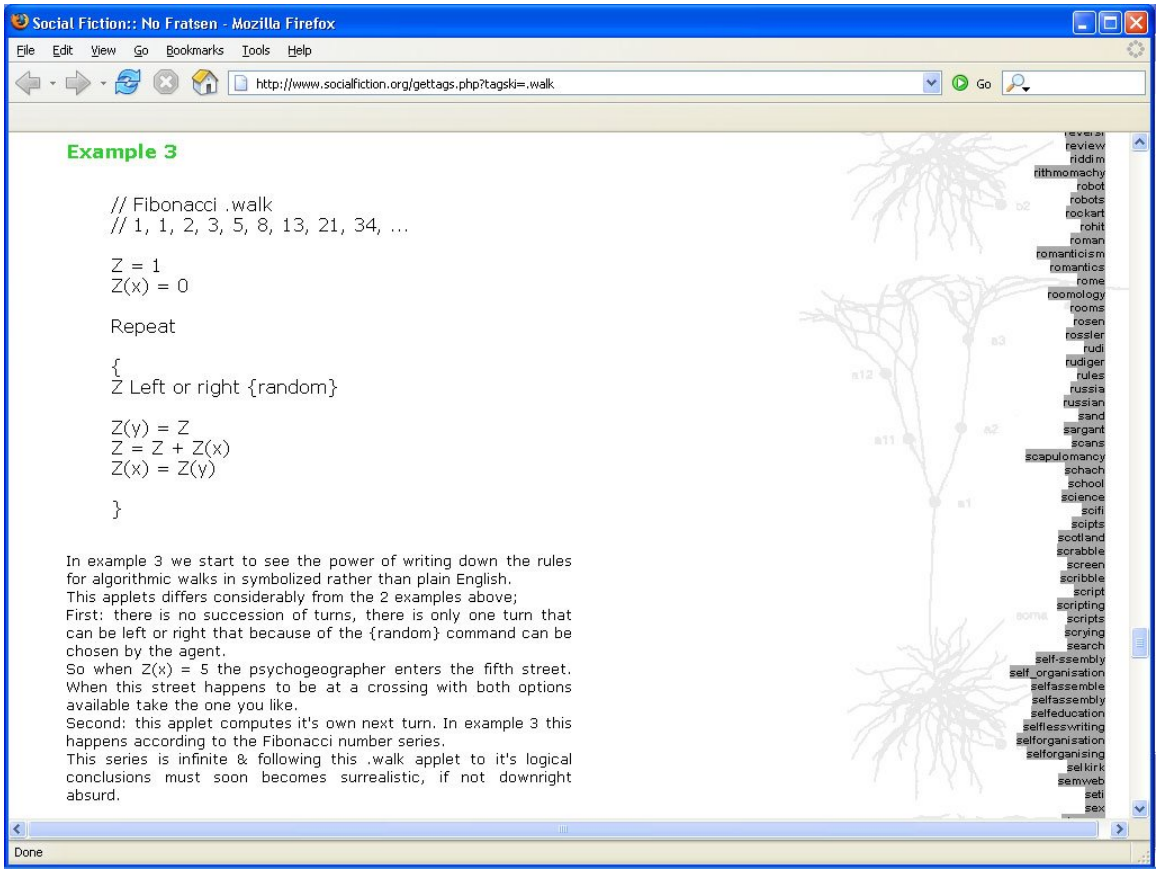

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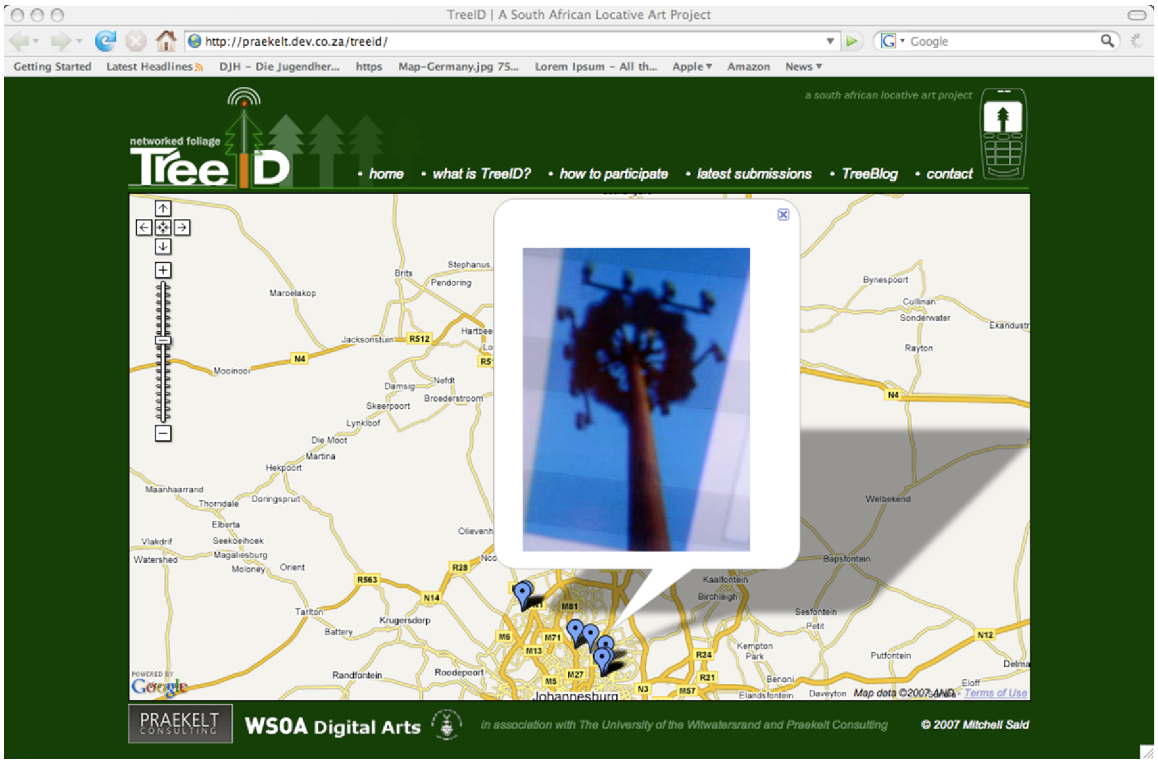

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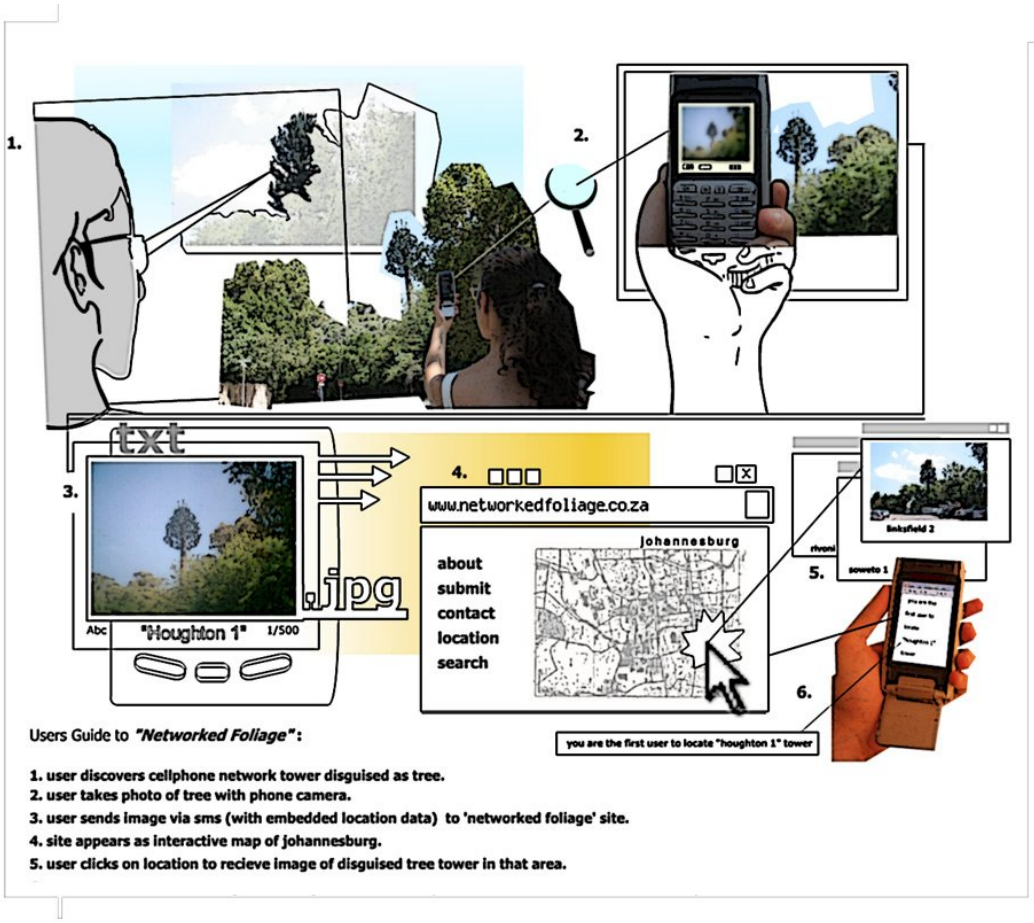

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