A Preliminary Investigation of Alien Presence

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Abstract

Work in ubiquitous computing and ambient intelligence tends to focus on information access and task support systems informed by the office environment, which tend to view the whole world as an office, or on surveillance systems that feature asymmetric information access, providing interpretations of activity to a central authority. The *alien presence* provides an alternative model of ambient intelligence; an alien presence actively interprets abstract qualities of human activity (e.g. mood, social energy) and reports these interpretations, not to a central authority, but back to the user's themselves in the form of ambient, possibly physical displays. The goal of an alien presence is not task accomplishment and efficient access to information, but rather to open unusual viewpoints onto everyday human activity, create pleasure, and provide opportunities for contemplation and wonder. The design of an alien presence is an interdisciplinary endeavor drawing on artificial intelligence techniques, art practices of creation and critique, and HCI methods of design and evaluation. In this paper we present preliminary work on the Tableaux Machine, an alien presence designed for the home environment, as well as discuss a number of general design issues of alien presence including co-interpretation, authorship, richness of expression vs. system complexity, tensions between viewing computation as a medium vs. as a model, issues of privacy, and evaluation.

1   Introduction

Exchanges between people and computers generally occur for limited periods of time. Keyboards and screen displays discourage interaction with a personal computer beyond a few hours. Indeed, current computational systems are not designed for long term exchange with humans, discouraging pleasurable, low-impact interactions of even a few hours, let alone interactions lasting for days, months, or even years. For many cultural sites of activity, such as kitchens, restaurants, bedrooms, hotel lobbies, or the sidewalk on a busy street, hunching in concentrated attention over a keyboard and mouse is utterly inappropriate. Ubiquitous computing researchers build site-specific information appliances precisely to address these problems, with the aim of making information available anytime, anywhere. Work in proactive computing and ambient intelligence seeks to combine ubiquitous computation with artificial intelligence, creating context aware systems that actively monitor the goals and activities of users to support proactive engagement. However, this "information access and task support" model of ubiquitous computing tends to turn the whole world into an office, bringing task-specific information such as stock quotes, shopping lists, and co-worker locations into every nook and cranny of daily life. In this paper we explore an alternative to the task-support model of ubiquitous computing – ambient computational devices that open unusual viewpoints onto everyday human activity, create pleasure, and provide opportunities for contemplation and wonder. We call this design approach of combining AI-based interpretation of human activity with expressive, ambient, physical displays *alien presence*.

Some examples of alien presences from AI-based new media art include Böhlen and Mateas' *Office Plant #1*, a robotic sculpture that responds to the social and emotional tone of the email received by its user, Simon Penny's *Petit Mal*, a robotic being that engages users in a compelling, not-human-based social interaction, and David Rokeby's *Giver of Names*, a computer vision system that offers poetic commentary on its input (Huhtamo, 1998). An alien presence provides a dynamic and autonomous interpretation of a human social context, not with the goal of interpreting the context the way a human would, but rather to provide an alien interpretation of the context that encourages participants to reflect on their own activity. The user and the system together create a site of co-

interpretation: the meaning of the ambient display is produced both by the autonomous interpretations of the system and by the projections of the user. The system, through its alien interpretation, makes strange the unreflective activity it observes, providing participants an opportunity to reflect and project new meanings onto their own activity.

In this co-interpretation model, authorship is distributed among the designers, the users, and the system itself. The designers' decisions create a potential space of system activity. The users actively interpret the display produced by the system, projecting their own meanings onto a display produced in response to their own activity. Finally, the system is engaged in its own autonomous interpretation and re-expression of observed activity. Co-interpretation can occur when the system avoids the extremes of either simple one-to-one mappings between perception and expression, or random and chaotic mappings. With a one-to-one mapping, all a user can do is decode the system's mapping, leaving no room for the user to project their own meanings. At the other extreme, the system provides no regularities from which the user can create an interpretation relating her activities to the alien presence's display.

Unlike AI-based proactive computing systems that attempt to infer detailed models of human intentionality (i.e. goals, tasks, plans) in order to proactively support tasks, an alien presence attempts to understand and respond to the subtle and rich affective, social and cultural aspects of human activity, such as the "mood" of an environment, or the connotations and emotional tone of social interactions. We avoid the need for "AI-complete" models of human behavior by making use of the perceptual constraints and affordances of specific social and cultural situations. By identifying the site-specific meaning of perceptual features as well as proxy measures that can stand in for non-accessible features of a cultural context, one can turn the perception problem from an open-ended, arbitrarily hard problem to a technically tractable problem for a specific environment.

Our approach combines three disciplines: Human Computer Interaction, Artificial Intelligence and media art. From HCI we bring a concern with socially and culturally appropriate technologies, and the use of qualitative methods to inform and validate such technologies. From AI we bring a concern with the computational manipulation of knowledge (that is, tokens that carry human meaning), and techniques and methods such as machine vision, language processing, and formal knowledge representation, for perceiving and reasoning about meaningful human activity. From media art we bring techniques and methods for creating conceptually rich and aesthetically satisfying interactive experiences, serving as a corrective for the traditional task-centric focus of AI and HCI.

The alien presence we are currently building is the Tableaux Machine, an art display for the home. The machine uses perception technology to sense the activities in the home. It maps its percepts into artistic renderings using a shape grammar and it displays these productions on a plasma screen on the wall of the living room.

In this paper we explore the following issues of the Tableaux Machine and alien presences in general: co-interpretation, authorship, richness of expression vs. system complexity, tensions between viewing computation as a medium vs. as a model, issues of privacy, and evaluation.

2   The Tableaux Machine

The Tableaux Machine is an alien presence designed for the home environment. The goal of the artifact is to enrich the every day experiences of its users by presenting opportunities for contemplation and reflection. The machine is a visual collage that rearranges itself based on the perceived mood of the environment. Our current implementation of the Tableaux Machine runs over the infrastructure of the Aware Home at the Georgia Institute of Technology (Kidd et al. 1999). The system is encapsulated in three modules: first, the perception module; second, the mapping module; third, the rendering module.

The perception module combines the input from 6 overhead cameras fixed in the ceiling of the social areas of the home. The cameras capture the activity in the living room, the dining room, the kitchen and the hallway. Since the cameras are fixed and the background images are relatively static, the first algorithm we use to analyze the environment is background subtraction. A template of the background is subtracted from the running images. The absolute difference is cut at a threshold. The result is a binary image depicting the foreground pixels. Notice that this algorithm fails if the background is dynamic, if there are sharp shadows that change location, or if the cameras are not fixed.

Once the image has been segmented, we define a number of features over the foreground pixels. The first feature is the percentage of the image which are foreground pixels. This gives us a sense of crowdedness (people, things or animals that do not belong in the background). Second, we compute the velocity of the moving pixels. This gives us a sense of activity. Third, we compute a histogram of activity over the image. While these features do not directly indicate the mood of the home, they are correlated to a human classification of mood. For example, a crowded house with low activity might be indicative of a family dinner. A crowded house with high level of activity may indicate a party. These are human labels. We are interested in the alien labels.

To contextualize the features as belonging to similar states of the environment the system creates its own clusters in the n-dimensional feature space. For example, if we use only the dimensions of percentage of pixels and velocity, a number of sectors in this plane of two features will be crowded with instances from the training data. A clustering algorithm computes the statistics of the clusters (mean and variance) and fits new data instances into these clusters. The clusters do not necessarily map to human taxonomies of mood and activity. The clusters are simply statistical groupings of the data given the features that the author has chosen.

Once the visual data is contextualized, the system generates a mapping between the classification and the rendering. In Tableaux Machine we chose to map the categories of mood and activity using a formal shape grammar (Stiny, 1975). A shape grammar produces n-dimensional structured visual shapes. Our shape grammar produces collages reminiscent of the art of Joseph Cornell (see Figure 1). The grammar's non-terminals are the general structures of the shape which give rise to the composition of the collage. The terminals are the visual renderings. For example, the non-terminals may divide the space into header and body while the terminals paint what the header and body look like. The set of non-deterministic productions is guided by the output of the perception module. In other words, the structure, i.e. the composition of the rendering is guided by the machine's interpretation of the mood in the environment. Our goal is to find mappings that lend themselves to interesting interpretations. The mappings should not neither simple one-to-one mappings that the viewer merely decodes without reflective interpretation, nor purely random or chaotic mappings that provide no support for human meaning making. The objective is to find the balance between the two. This structured image generation provided by the shape grammar is key to maintaining this balance between simplistic information visualizations and chaos.

The third part of the system is the rendering module. The rendering module can be physical or graphical. In our current system we use a graphical rendering module. The module receives the commands issued by the mapping module and it structures the composition and paints the individual elements of the rendering. The renderings appear on a large plasma screen that hangs over the chimney in the living room of the Aware Home (figure 1 and 2).
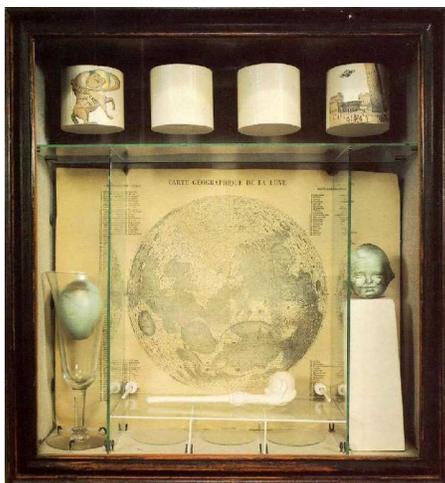
Figure 1: Joseph Cornell Box, *untitled*, 1936   **Figure 2:** Tableaux Machine based on a Cornell box.

From an HCI perspective, the Tableaux Machine, and digital art in general, serves the purpose of critically analyzing assumptions about design. For instance, while ubiquitous computing devices strive to become information

appliances, the goal of the Tableaux Machine is to be a visible reflection of what it senses in the environment. The machine provides an ambient interpretation of the environment, offering users the opportunity to actively reflect on their unreflective activity. This is in sharp contrast to ubiquitous computing's goal of building transparent devices that proactively support unreflective activity. The design space of alien presence opens the possibility of non-task-based ambient intelligences which, rather than providing unreflective support for efficient task accomplishment, provide opportunities for contemplation and reflection.

3 Co-interpretation and Co-spectatorship

Interpretation is the process by which people assign meaning to events or objects in order to make them relevant in the context of their lives. Assigning meaning to an artifact is a complex process that involves at least two elements besides the artifact and its producer: (1) how viewers interpret or experience the image and (2) the context in which the artifact is experienced (Sturken, 2001). Viewers make meaning. Although an artifact might carry an intended meaning, the dominant or shared meaning, they can also be interpreted and used in ways that do not conform to this intended meaning. It is rarely the case that an artifact communicates equally to everyone. Instead, it speaks to specific sets of spectators tuned to particular aspects of the artifact.

To discuss the issue of interpretation in alien presence, we will first define the practice of Expressive AI. Alien presences are an instance of Expressive AI systems, which are art forms based on artificial intelligence. The goals of Expressive AI are to explore the expressive possibilities of AI architectures and to expand the boundaries of what is possible in art. Expressive AI, by simultaneously engaging AI research and art practice, raises issues in both practices that would not be raised otherwise.

The central design metaphors of an Expressive AI system are its authorial and its interpretative affordances. In the next section we will discuss authorial affordances. Interpretative affordances support the interpretations an audience makes about the operations of an AI system. It conditions the meanings that can be negotiated between artist and audience and provides the resources for narrating the operation of the system and for supporting intentions for actions that an audience may take with the system. Interpretive affordances provide the audience with the necessary feedback to tell a story about what the system is doing and what meanings the author intended to convey, and, for interactive art, to tell a story about how the artwork is responding to audience actions (Mateas, 2001).

We define co-interpretation as the process by which both the user *and the machine* assign meaning to the artifact. An alien presence system elicits interpretation, like any other art object. The spectator experiences the artifact from her personal perspective, with her subjectivities and prejudices. She assigns meaning to the artifact. The novelty of the Expressive AI artifact is that the system of art creation is driven by algorithmic simulation of interpretative processes that lend themselves to user recognition of awareness. In other words, the human spectator is able to perceive the machine as an active meaning-making presence. That changes the experience. Technically, the machine is only processing the input from sensors, digitizing the input and running algorithms over the digital signals. The algorithms heuristically assign a level of meaning to the signals. They transform senseless numbers into higher level percepts, such as objects, actions and states. The artist/programmer defines the meaning-producing mechanisms of the machine through her architectural and algorithmic choices. In particular, The Tableaux Machine undergoes several levels of interpretation. First, it integrates the low level signals from the sensors, such as pixels, locations and velocities, into activities and moods of the environment. Second, it maps the perceptive interpretations into the grammar in order to influence the choice of productions. Third, in a proposed physical implementation of Tableaux Machine, it interprets the visual attributes of the user-provided assemblage objects, such as shape, size, and color, in order to integrate them into the productions of the shape grammar and compose the visual renderings. The Tableaux Machine and the spectator are both active meaning assigning agents. They co-interpret the artwork.

The programmer is also part of the interpretation process. She changes the code of the machine by experimenting, usually with herself as subject. She is, at the prototyping stages, producer and spectator at once. She programs the system by interacting with it and she improves the system by having other people interact with it. A computer system usually undergoes several design iterations before it is complete. As part of the co-interpretation process, the author surveys and interprets the reactions of the user and of the machine. The machine is a product of multiple iterations of interpretation by its creator. In this iterative design the goal is not to strive to satisfy the user's needs, as is traditionally done in HCI. The iteration of the design is not about improving usability. It is about experimenting

and validating the alien presence as a medium of communication. The question is not: is it good HCI? It is not: is it good art? The question, at this stage, is: is this a good medium, a viable channel for communicating meaning?

The spectator does not actively interact with an alien presence by pushing buttons and driving its activity. Rather, her unconscious, pre-reflective daily activities activate perceptions in the machine that drive its artistic productions. It is this level of unconscious activity that is reflected to the user. The user does actively interacting with the system when she contemplates and interprets it; when she assigns meaning and intelligence to the system. She interprets the state of the system based on her understanding of how the system produces images, an understanding which includes her own projected meanings and narratives. It is an interaction that takes place over a prolonged period of time. The user needs to become accustomed to the renderings and mappings before she sees the patterns that emerge from similar activities.

4 Authorship, co-authorship, and procedural authorship

In interactive art there is distinction between playing a creative role within an authored environment and having authorship of the environment itself. Authorship of most electronic media is procedural. Procedural authorship means writing the rules by which the art is created as well as defining the space of possible creations. It means writing the rules for the interactor's involvement, that is, the conditions under which things will happen in response to the participant's actions. It means establishing the properties of the objects and the potential objects in the virtual environment and the formulas for how they will relate to one another. The procedural author creates not just a set of scenes, but the space of possible experiences (Murray, 1997).

In Tableaux Machine the author of the program defines the perception system, the grammar of productions and the mappings between perceptual and expressive elements. The space of possible perception, mappings and grammatical productions is combinatorially immense. Even if the renderings are very similar, the probability of identical renderings is very low. The artist authors the experience by selecting the paths in the combinatorial space that will best lead to the communication of meaning.

The machine has a complex stochastic algorithmic structure that simulates creativity. For some researchers in AI, the goal of artificial intelligence is to simulate intelligence; to act intelligently. The quality of the simulation is evaluated by its intelligent interaction with a person. As stated in the Turing Test, if the person cannot distinguish the interaction with the machine from an interaction with another human, than we can say that it behaves intelligently. The test of intelligence does not have to be one of natural language processing. The interaction may well be through artistic renderings that react to input from the user. In the case of the Tableaux Machine, the input is the perception of an unconscious set of user activities. Reflection occurs when the user consciously reacts to the generated art object. An alien presence participates in a specific cultural context in a manner that is perceived as intelligent, if non-human. Like the Turing Test, the ascription of intelligence is made by the observer, rather than being an essentialized quality of the machine. In this sense the machine itself is perceived as an author, a creator of dynamically change art objects.

In some sense the spectator can be seen as an author in that it is her physical activity that triggers the machine and her interpretive activity that ultimately assigns meaning to the display. This meaning is, however, not completely free, but conditioned by the authorial decisions of both the procedural author and the system itself. The condition of co-interpretation requires an understanding of co-authorship, in which the system creator, the system, and the user, are all responsible for the overall experience.

The artist receives feedback through the creative process of building and testing the system. The author learns through the experience of creation; through the discovery of the authorial affordances of the machine. Mateas defines authorial affordances as the "hooks" that an architecture provides for artists to inscribe their authorial intention on the machine. Different AI techniques allow different opportunities of control and different combinatorial restrictions. The analytical and experimental exploration of the authorial affordances of the vast variety of architectures in AI is central to the practice of Expressive AI (Mateas, 2002). For Expressive AI, the primary research question is the relationship between authorial and interpretive affordances. The authorial affordances should allow the author to manipulate appropriate interpretive affordances for the audience; the machine mediates between the procedural author and audience.

5   Richness of expression vs. system complexity

One-to-one mappings are simple forms of representation that relate specific measurements from the environment with specific expressive elements. An example is translating position of a person in an environment to the positions of objects in a display. While one-to-one mappings may elicit explicit interaction with the system and provide interesting settings for entertainment and amusement, this will not afford opportunities for interpretive reflection. In alien presences we are looking for systems that do not require explicit interaction and that do not demand attention. The objective is to build systems that give rise to rich interpretations and reflections. To reach these goals, the system must exhibit a certain level of complexity. On the other hand, if the system is too complex it is indistinguishable from chaos. There is, thus, a continuum of system complexity from one-to-one mappings to absolute randomness. We argue that both extremes do not afford interpretation and reflection. A balanced system, one between both extremes, presents complexity and order and affords richer and more meaningful interpretations. The qualities of mystery and surprise associated with art arise from complex, yet decryptable mappings. Furthermore, the complexity balance of the system is ultimately what affords co-interpretation.

Two examples of artistic systems that generate one-to-one mappings are Todd Miller and John Stasko's Infocanvas and Sara Ljungblad and Lars Erik Holmquist's Weather by Mondrian. Both systems are instances of information art (Redström, 2000). Infocanvas is an abstract display designed to help people maintain awareness of important information (Miller and Stasko, 2003). The possible representations depend on the type of data they convey. For example, binary data may be represented by the presence or absence of an object. Continuous data may be represented by moving objects. The goal is not to elicit introspective interpretation, but to constantly convey information in an aesthetically pleasing manner. Similarly, Ljungblad and Holmquist use Mondrian style paintings to encode a five day weather forecast (Ljungblad and Holmquist, 2000). The days are mapped to five boxes with different colors. Yellow is sunny, blue is rainy, and red is overcast. The size of the square is a function of the temperature. In the words of Bolter and Gromala, Infocanvas and Informative Art are transparent interfaces, windows that the user sees through to access the data on the other side (Bolter and Gromala, 2003). With alien presences, on the other hand, the author strives to create an interface that will reflect the user with interesting, non one-to-one mappings. It is a strange mirror.

The system's complexity is expressed through its authorial affordances. The designer can alter parameters of perception, representation and expression. The perception of the system can be designed to understand the environment at many different levels of granularity and abstraction. For example, a low level vision system may return measurements of background subtraction and percentage of foreground pixels as correlated measurement of activity in an environment. It can perform blob tracking, aggregating measurements of speed, acceleration and direction to get a sense of the activity. Furthermore, the system can categorize such activities into meaningful bins. A clear distinction to be made with humans is that alien presences do not necessarily need to categorize human activity in the same manner as humans do. For example, people playing a game may be similarly viewed as people having a serious dispute, due to the resemblance of the visual inputs of both activities. For the spectator, this is what is alien about the interpretation of the system. It is meaningful, but the meaning may be unfamiliar.

We define the internal representations of the system as mappings from perception to expression. The complexity of these mappings is in the hand of the designer. This complexity is a key factor for the expressiveness of the system. As we stated before, simple one-to-one mappings inhibit the richness of the experience. For Tableaux Machines we have defined a structured system of mapping for the visual representations of the mood in the environment. We use shape grammars to generate the visual states of the system. The shape grammar is non-deterministic and parametric. The perception module selects an instance from the set of conditional productions and sets the parameters of the production. The conditional productions shape the structure of the rendering by selecting the visual elements and the spatial relations between them. The parameters of the productions are the specific positions and orientations of the objects selected. The perception of the system elicits a set of visual configurations. Since the system is non-deterministic the details of the response to similar stimuli is non-repetitive. On the other hand, the underlying grammar preserves the general structure of the visual rendering. It provides the complexity balance that the system needs in order to elicit co-interpretation.

The system externally expresses its perceptions and representations through a physical display. The display may be, for example, a robotic sculpture, such as *Office Plant #1*, a screen display, or a mechanical assemblage (both options of Tableaux Machine). In each case, the physical medium of communication with the user affords many levels of

variable complexity. For the case of the mechanical assemblage, for example, users could pick the physical objects that form part of the composition. The objects carry meaning for the users. For the system, on the other hand, the objects represent only their shape, color and size. The system incorporates them into the composition based only on its own perceptions and interpretations. The user is confronted by a combination of the alien interpretations of the objects and her personal associations with objects, again providing opportunities for "making strange", for reflection.

The abstraction at the three different levels, perceptions, representations and expressions, avoids overdetermination of meaning. It creates flexible and open representations into which users can read their own meanings. It does not try to fully represent and determine user experience, but rather maintains enough interpretive freedom for users to bring their own ambiguous moods, dreams and desires to bear on system interpretation. Meaning should be co-determined by user and system, not fully dictated by the system. The strategy of abstraction is one way to maintain room for co-determination.

6 Evaluation, Critique and Privacy

The question of what is good interaction in HCI is usually answered by quantitative or qualitative evaluation methods. The question what constitutes good art is usually answered by a rigorous critical analysis of the artwork within its cultural, social and intellectual contexts (Höök, Sengers and Andersson, 2003). It is not the goal of the alien presence research to answer the question "what is good art" by a user study. Instead, we intend to give the artist a perspective on what constitutes an effective interaction and a viable medium of expression. In other word, we intend to explore the design approaches for creating expressive artworks and how those approaches influence interaction. The reflection of the design practice links the design approach to the effect achieved by it. The artist benefits from the HCI practice by informed awareness of what works in the design of interactive art. On the other hand, the HCI researcher benefits from the alien presence research by confronting the interpretative, subjective issues of perceiving computing as an artistic medium of expression.

Traditionally, AI researchers have thought of computer systems as a model of intelligence. The system has input-output devices that interact with the environment and an internal thought model that maps the input to an output. Viewing the computer as a medium is fundamentally different. As a medium, the computer inherits some of the conventions of other media, such as television and newspapers, but it also creates new interactions due to its unique affordances. Viewing computation as a medium is primarily about the communicative and expressive affordances of the machine. Ideally, it is about transmitting a message without consideration to the underlying technologies that enable the transmission.

In interactive art the tendency has been to avoid user studies. Recently, hybrid artwork-interfaces have been evaluated through a combination of argument and informal conversation with users. In Höök et al., the Influence Machine's evaluation was primarily interpretative. It focused on understanding how users interpret the machine and what message it conveyed to them. The evaluation methods they used were observation and interviewing. Interestingly, the authors subjectively interpret the study participant's emotional reactions. They argue that this feedback was the most valuable to the artist during the design of the system. In a sense, they consider the artist to be the consumer of their technology. Thus their evaluation process focuses on how they can make the system a better medium for the artist, i.e. how it can better convey a message.

For the artist developing alien presences the key issue is how to create a piece that elicits reflection. We plan to evaluate the effectiveness of alien presences trough a longitudinal user observational study, together with the type of interpretative interviewing techniques described in Höök et al. Furthermore, we intend to couple these observations with the logs from the machine. We intend to evaluate the system as a function of its complexity and its rendering. In the dimension of complexity, we will evaluate three systems: first, a simple one-to-one mapping between percepts and renderings; second, a simple random-number generator that decouples the system's display from perception (the chaos end of the spectrum); third, the system that we propose here – a balanced mapping that avoids complete transparency and absolute opaqueness. The second level of evaluation is the rendering system. Again, we will evaluate three systems: first, a simple text generator that translates the classification of the perception module; second, a screen computer graphics rendering; third, a physical robotic assemblage.

The perception technology of the alien presence system includes cameras and microphones. This raises the issue of privacy. It is a central concern of the users that the visual and acoustic recording be private. It must be made clear that the sensor and interpretative information will be used for system feedback only. A partial solution to this problem is to eliminate the recordings of actual video and sound. The system does not need to record this information. The feedback does not depend on the actual sensor recordings. There is at least another layer of interpretation that is used by the system to generate its renderings. This level does not need to be encoded in human legible terms. Furthermore, for the purposes of evaluation, the system only needs to record the higher level perceptions in the form of text logs. It must be made clear that our emphasis is not on centralized surveillance, but on auto-surveillance.

With the research into alien presence we intend to study several HCI design issues. First, we acknowledge the importance of computation as an experience and the value of emotional contemplation as part of this experience. We determine to what extent the expressiveness of the system contributes to a richer experience. Second, we incorporate individual, anecdotal and subjective observations. We acknowledge that viewing the computer as a medium means that interaction with it necessarily implies a multitude of interpretations and experiences. Traditionally, HCI research, based on its engineering background, has strived for generality of results that explain the standard behavior of the average user. In this study, we approach each user as intrinsically unique. Therefore, it is inappropriate to summarize the results into a few statements that hold for everyone. Recent ethnographic styles in HCI have started taking into account the subjectivity of both the observer and the user. This type of evaluation goes further in the same direction, advocating a unique subjectivity.

7   Conclusions

This is an exploratory paper of a new medium of expression. Alien presence involves three fields of study: Human Computer Interaction, Artificial Intelligence and Art. As a new medium, alien presence affords design strategies that include interactive interpretation with varying levels of complexity and engagement. Alien presences are more a new medium of expression than a computational model. They do not try to model the behavior of real people or animals. Rather, they afford creative expression. These systems raise important issues of emotional experience, interpretation and authorship. Furthermore, they pose new challenges of system evaluation and artistic critique. We are currently installing an alien presence system, the Tableaux Machine, at the Georgia Institute of Technology's Aware Home Research Initiative. We plan to use this system to deepen our understanding of the issues we presented in this paper.

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