

Animist User Expectations in a Ubicomp World: a position paper for "Lost in Ambient Intelligence"

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ABSTRACT

I posit that the more widespread ubiquitous computing becomes, the more people's explanations of technology will resemble animism. As common technology becomes more interconnected and smarter, people's understanding of its functionality ceases to be based on a mechanistic model and becomes more anthropomorphic. This model in turn changes the way that the creators of ubicomp devices have to approach their designs to consider systems of objects and users' acceptance of a level of unpredictability.

INTRODUCTION

How will people react to a ubiquitous computing world?

It's already difficult to predict how technological objects will behave when their functionality is hidden in black boxes and radio waves. Once these technologies are widely distributed in everyday objects, the environment they create may become too difficult for us to explain in purely functional ways.

Sherry Turkle's research with children showed that their explanations of how electronic toys work and mechanical toys work are different. When describing electronic toys they have trouble pointing to any physical functionality they can understand, so they use psychological models and terms to describe how the toys work, asking themselves whether they had feelings or could cheat. This may be the case with adults, too, who anthropomorphize when they don't have a good functional model to explain how things work. When a large proportion of the things around us recognize us, remember us, react to our presence and communicate about us we will likely revert to psychological metaphors to understand what's happening.

Animism is the belief that all objects have will, intelligence,

and memory and that they interact with and affect our lives in a deliberate, intelligent, and (in a sense) conscious way. It's probably the oldest way of explaining the world and has appeared in nearly every culture. I propose that when we have no other way to explain how things work, we will see the world as animist—maybe not in the religious sense, but as a way of explaining how the world works. Technology-based rituals and superstitions may occur as intelligent objects appear in ever-increasingly intimate situations.

THE END OF PREDICTABILITY IS OK

Perhaps the biggest change this shift implies for user-experience designers will be users' disregard for predictability in their products and an expectation that the products will just know the right action or answer.

Consumer products exist that have already started to exploit this. Smart games and toys work by adding enough complexity to their behavior that their actions are no longer predictable, which users then accept as part of the fun. With AIBO, Furby, Musini, and video game AIs, the users cede their desire to predict the actions of the technologies in exchange for more "entertaining" behavior.

But games are just the thin edge of the wedge. Arguably, unpredictability has been part of games since Peek-a-Boo, but what's interesting now is people's willingness to let other more utilitarian technology operate independently and unpredictably. One of the "magic" things about TiVo is that it surprises us with its accuracy in choosing programs that we'll like. The Roomba vacuum cleans your carpet and knows when you're out of the room. The Airbus A320 jumbo jet has "fly by wire" controls that prevent pilots from doing things that would be dangerous. Stocks are traded automatically by software.

These behaviors make for a better experience, but at the cost of predictability. What if you don't want to watch every cop show? What if the pilot really needs to do something that the control software designers never thought of?

When we trust technology to do what we mean, rather than what we say, we establish a fundamentally new attitude toward it, new expectations.

DESIGNING FOR NEW METAPHORICAL MODELS

What heavy computer user has never had the urge to search for lost keys by doing a “Find File” on their house?

Metaphorical models form the blueprint for how people try to interact with an interface — be it physical, social, environmental, or on screen. The more technology permeates our world, the greater it shapes our explanations of the world.

In order to design a product that is seen as usable and useful it's critical to know users' model(s) for an interaction. It may even be more important to design within people's models than to get the small details of the interaction perfect.

An animist outlook — one where people project behaviors, expectations and intentions onto objects and environments that may have nothing to do with how they actually function — may well be a major sea change in the way that designers have to design.

Rather than focusing on matching people's capabilities (what they can remember, understand, how well the software domain matches the users' tasks, and so on), user experience design will have to be more sensitive to respecting, creating, maintaining, and selectively breaking expectations. A design approach will need to be created that actively supports the positive aspects of such an outlook and discourages the negative ones.

NEW QUESTIONS

Looking at the problem of networked ubiquitous devices through the lens of animist expectations immediately creates many questions. For example:

- Under what circumstances do people trust or mistrust objects?
- What kind of communication between objects is appropriate, acceptable, or desired?

- How is designing for systems of objects with user *expectations* of background communication between the objects different than merely designing for object interoperability?
- What functions cluster to form new kinds of objects?
- How does intelligence influence the desirability of objects?

WORKSHOP INTEREST

For the last 10 years I have been a commercial Web user experience designer. Lately, the projects that I've been involved have become more closely integrated with hardware as Web browsers have started appearing on all kinds of consumer products. This has led me to think about the nature of ubiquitous networked environments and the implications that they have on people's experiences. As a commercial designer/developer/researcher, I have a lot of experience with the tradeoffs and tensions that exist in the design mass-market consumer products. Such compromises will no doubt exist in the upcoming ubicomp revolution, and I feel that it's critical to understand the implications of the revolution in order to design for maximum benefit of the technology to its users.

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