

Statement of Research
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Overview of Research Interests

I am interested in formally advancing the medium of videogames, and expanding our understanding of what videogames are and can be. To accomplish this, I explore games along various avenues which are social, physical, technological, and artistic, trying to generate ways to develop and iterate upon them, play and test them, and critically discuss them.

Current Research

Avant-garde Videogames

In my dissertation, *Play Beyond Flow: A Theory of Avant-garde Videogames*, I explore how people are pushing the videogame medium in novel directions artistically. Videogame tinkerers, players, and activists of the 21st century are continuing, yet redefining, the avant-garde art and literary movements of the 20th century. Videogames are diversifying as a social, cultural, and digital medium. They are used as political instruments, artistic experiments, social catalysts, and personal means of expression. A diverse field of games and technocultural play, such as alternate reality games, griefer attacks, arcade sculptures, and so on, can be compared and contrasted to the avant-garde, such as contemporary tactical media, net art, video art, Fluxus, and the Russian Formalists, to name a few. For example, historical avant-garde painters played with perspectival space (and its traditions) in movements such as cubism, rather than only within the traditional grid-like spaces they inherited from Renaissance painting. This is similar to how game artists reflexively play *with* flow (and player expectations of it), rather than adhere to flow as the experiential ideal of games. Videogames are not only an advanced product of technoculture but are the space in which technoculture conventionalizes play into familiar patterns. As artists are demonstrating, this makes videogames a fascinating site to examine, and perhaps to rethink, the protocols and rituals that rule technoculture.

Augmented Reality Games

For the past few years I have researched and developed augmented reality (AR) games played on mobile devices and smart phones, such as the iPhone, in the Augmented Environments Lab (AEL) at Georgia Tech. Working with funding clients, such as Cartoon Network and Motorola, we develop “blue sky” approaches prototyping the future of AR games using fiducial markers and natural feature tracking. For example, we developed a virtual interactive puppy named Dart: players can aim the iPhone camera at physical playing cards with fiducial markers printed on them on which Dart appears and reacts. Dart gets hungry or lonely, and players move the cards around the table to play with him, or tap on the phone screen for Dart to walk to that position. Another project we developed was BragFish, a multiplayer fishing game where players compete or cooperate as they drive boats around a virtual tabletop lake and try to catch the biggest fish.

Affordance Mining

In an art-research project called Mashboard Games, we “affordance mine” the common computer keyboard trying to invent new ways to engage the hardware. Rather than simply typing on the keyboard, these games invite players to rub, twinkle and mash the computer keyboard instead. Inspired by Fluxus art, Mashboard Games are awkward yet liberating to play because our usual relationship to the keyboard must be renegotiated in an open, physically aware, and exploratory way. Fluxus artist, George Maciunas, sawed holes in ping-pong rackets, gluing Styrofoam and attaching cans to them before inviting people to play games. Building off of this idea, I coined the term “affordance mining” to describe the process of researching a technology to determine its underutilized and actionable properties which might then be leveraged to foster innovative forms of play between the actor and the technology. Affordance mining could be considered a type of hacking, but rather than subverting a technology’s designed intent by exploiting its weaknesses, the emphasis is on discovering and inventing new interaction modes with a technology. The practice could be applied to any technology from automobiles to electric toothbrushes.

Future Research

Augmented Reality Games

I am interested in developing social games using Argon, an AR browser in development in the AEL. Argon is an open-source platform for augmented reality applications using web markup languages, such as HTML, KML, and JavaScript, already currently in use. Players can use mobile phones to see web content and virtual objects overlaid onto the real world around them. The possibilities for collaborative play with Argon are endless, from citywide treasure hunts, to overlaying guerilla virtual art installations within official gallery spaces so. Establishing a collaborative and interdisciplinary group of students that are artists, programmers, and designers to develop these games would be ideal.

Affordance Mining

I’m eager to explore what kinds of games can be created with the new affordances of mobile devices, such as accelerometers, gyroscopes (for example, in the iPhone 4G), GPS, and various methods of networking. This could be done as an “art game research lab.” Commercial game companies are usually quite conservative in their approach to the games that they imagine in this new space, but an art game research lab doesn’t have the same financial constraints, and is freer to be more diverse and creative. The most interesting research would likely arise from affordance mining technologies not already associated with games, and creatively bringing these into the domain of play.