Enhanced Reality Live Role Playing

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Abstract.
Live role-playing is a form of improvisational theatre played for the experience of the performers and without an audience. These games form a challenging application domain for ubiquitous technology. We discuss the design options for enhanced reality live role-playing and the role of technology in live role-playing games.

1. Introduction

Rapid technological developments in recent years have made computers common and available in various different forms, including being embedded into everyday things. However, it is not obvious how the potential of such complex computational environments are to be presented and used by humans. Researchers have started to address this issue during the last few years in research programs such as the EU-funded Disappearing Computer Initiative.

Live Action Role Playing games (referred to as LARPs hereafter) have been proposed as a fruitful environment to explore how pervasive or ubiquitous computing can augment social interaction (Schneider 2001). We believe that live role play offer several additional motivations for being used as a context for researching ubiquitous computing systems.

- This application area is a highly demanding design space where any technological affordances of a device must be totally hidden or disguised. To have the players accept an artifact, it has to completely blend in with the setting or it will be rejected.
- The use of these systems is varied as they can be both be used by people organizing games and people orchestrating interactive experiences (Laurel 1992). Through the study of augmented LARPs, new technology is exposed to extreme use situations in order to more easily identify potential problems that are also present, but not as evident, in an everyday, mundane use scenario.
- Both the actual games, and the technology used in the games, are chosen and modified by the participants. To support LARPs, technology must be usable and explainable in non-technical terms. It must also be highly configurable in equally simple and purpose-oriented ways.
- Games are often played outdoors, putting real-life design challenges on the system to handle environmental conditions such as lighting and weather, as well as problems with power consumption, design robustness, system coverage (tracking and wireless networks), mobility and deployment.
- LARPs can function as a testing ground for exploring methods for interpreting and using sensors (see Antifakos 2002, Björk 2001, Holmquist 2001 for non role-playing game examples) due to the willingness of participants to have an active suspension of disbelief.

2. Background

Historical Live Role Play

An early example of a type live role play are the 'carrousel' games, a form of live role play often performed at the European courts during the 17th and 18th centuries in connection with coronations and other ceremonies. Under the monarch's supervision, the members of the court, the noblesse and the servants wearing valuable costumes and full-scale stage settings, reconstructed ancient battles, tourneys or mythological tableaus. The 18th century carrousels were very expensive events with budgets that would correspond to millions of dollars today.

Psychodrama

The second birth of Live Role Playing occurred in Vienna in the 1920s when the psychoanalyst Jacob Levy Moreno made his patients collectively treat their traumas by improvised role-playing (Fox 1988). This has since become an established therapeutic method, both in the so-called "psychodrama" and in conventional psychotherapy.

Psychodrama employs guided dramatic action to examine problems or issues raised by an individual (psychodrama) or a group (sociodrama). Using experiential methods, sociometry, role theory, and group dynamics, psychodrama provides a safe, supportive environment in which to practice new and more effective roles and behaviors.

To provide a safe environment for the experience, that sometimes can be quite dramatic, psychodrama employees an organized structure in which the experience is contained. In a classically structured psychodrama session, there are three distinct phases of group interaction: the warm-up where theme and protagonist is selected, the action where the problem is dramatized and the protagonist explores new methods of resolving it, and the sharing where group members are invited to express their connection with the protagonist's work.

Contemporary Role Play

Contemporary live role-playing consists of two additional variants besides the therapeutic: educational role-playing and role-playing for leisure and entertainment.

The use of role-playing within education is similar to that of therapeutic role playing, and aimed at giving the participants a understanding of their own and others actions in new or critical situations. The participants act out a scenario where the prerequisites are determined before the event, but the development of the scenario is influenced by the participants and directly changed by the event leader. Afterwards, the leader and the group analyze the cause of actions together in order to explore what alternatives existed and what could have been done differently.

Modern live action role-playing for leisure and entertainment stems from two origins. There have existed reenactment groups in the U.K and the U.S. for a long time, focusing on the detailed study and reenactment of a historical event or time period. One such example is the US-based medieval recreation organization SCA, Society of Creative Anachronism, which was started in 1966. This society has grown to a worldwide organization including over 24,000 paying members and with many more participating in events. The other origin is the development of tabletop role-playing games during the 1970ies. In the early 1980's some players, influenced by improvised theatre, started to perform their adventures with their physical bodies in a real surrounding, thereby inventing the current form of LARPs.

The development of modern role play activities has been very rapid. During the 1980ies, LARPs was a very narrow sub-culture playing almost completely in the world of Tolkien fantasy. Today, especially in Scandinavia and UK, it is a growing popular movement for people of all ages and every game stretches the boundaries of the subjects explored. One recent example is 'En resa som ingen annan' (A journey like none else), an educational game directed to high school students that stages the experience of a fugitive fleeing from a foreign country and seeking asylum in Sweden. This particular game was staged in October 2003 at the historical museum in Stockholm, in collaboration between a professional theatre ensemble and SVEROK, an umbrella organization for live role players (and other types of gamers) in Sweden.

3. Challenges and opportunities

Content from Many Sources

The LARP community has a strong tradition in creating their own games. The organizers of a LARP often spend a year or more constructing the conditions (the game world, the intrigue, the roles etc.) for the game. The participants work equally as much on designing their characters, props, and costumes. (LARPers often play the same character throughout a sequence of games.) During the game session, everybody contributes to the content by means of his or her improvised performances. As opposed to a computerized game, there are no limits to what the participants can do in the game. It is for example not unusual for players to invent subplots while gaming, which were not part of the original design.

The problem of the game master role

In traditional table-top role playing games, the game flow is controlled by a game master that monitors all events and decides on the story line. In LARPs, this role is weaker: the game organizers have both too little insight into the events that are happening, in particular if the game occurs over a large area, and too few means to influence players. A number of techniques have been developed to deal with this problem. In particular, game masters will control the flow of information in the game through spreading rumors at appropriate times.

Supporting Free Play

Mandryk and Inkpen (Mandryk 2001) classify LARPs as *free play* activities, which have been argued to allow participants to develop physical, mental and social skills (Vygotsky 1978). Free play has been defined by five characteristic factors (Voluntary, Spontaneous, Require Make-Believe, Engaging, Enjoyable), which can be seen as functional requirements that any technology must support (Mandryk 2001). Further, supporting social interaction and physical activity has been suggested as additional requirements (Rydenhag 2003). Supporting these elements through use of ubiquitous computing can not only offer possibilities to enhance the experience but also allow functionality that otherwise would be difficult or resource consuming to provide (e.g. summaries of previous events or synchronizing geographically separated players).

4. The role of technology in LARP

Enhanced Reality

The 'in-game' experience in a LARP is primarily obtained from setting the game in a suitable environment, but also from the clothes worn and the equipment used. Although LARP organizers take great effort to create as realistic environments as possible, there are limitations as to what can be done in this way. Here, ubiquitous technology can play a role to create an enhanced or even 'enchanted' (Ericsson 2003) reality experience. When we explore this option, it is important to examine the possible roles (and here we mean roles in the same way as actors take roles) technology can play in a live action role playing game.

The first and most obvious role that technology can take is to *represent itself.* A mobile phone can 'play' a mobile phone, a TV a TV, and so on. This is particularly useful when role playing is used for training purposes, such as in a crisis team, but can of course be used in any appropriate game setting. Behind the scenes, the content distributed over the phone and TV is simulated or part of the LARP performance, possibly adapted to the current game flow to create an interesting or realistic situation.

Information technology can also be *redressed as some other technology*. A game that takes place in an alien setting such as a different time period, a fantasy world, or a futuristic scenario, benefit from a reality-enhanced setting in that the alien technology can be simulated. Simulating magic is an example of this (in line with Arthur C. Clarke's (Clarke 1962) saying: "any sufficiently advanced technology is indistinguishable from magic") and well-known magical artifacts like crystal balls, magical mirrors or wizard books might from that perspective be defined as technology. An interesting variant is when

technology is used to simulate old technology that is difficult or expensive to recreate in today's world. As pointed out by Binsted (Binsted 2000), the fact that the purpose and usage models of magic artifacts are well-known from folk tales and fantasy stories, make them a powerful design metaphor for ubiquitous technology also outside fictional domains.

Another use of technology is to *extend and enhance our bodies*. Examples from the fantasy world could be that elves have better hearing than humans, and orcs can see in the dark. This can be reached using embedded technology hidden in costumes, masks etc. Technology can also enable us to play entirely non-human beings; animals or aliens. (As we saw from the 18th century example, it has always been popular to play mechanical monsters.) One example of this type of technology is the Elf-ear project, a final year student project at Blekinge Institute of Technology. The project focused on realizing the elves supernatural hearing ability. The main aspect considered during the design of the Elf-ear was that LARP sessions are extremely sensitive to disturbances from the "outer" world, 'real world intrusion', and the main problem was to adapt today's technology to a form that would not break the 'in-game' experience. In the final version of the ears it was quite hard to tell that each ear included a small headphone. The ears as such did not enhanced the users hearing directly but rather different sounds was used to indicate activities that the user normally would not be able to hear, e.g. sounds of footsteps through dry leaves was played to indicate something was approaching the wearer. The students never had time within the project to implement a system that would trigger these.

Finally, technology support can be *entirely invisible*, and take no overt role in the actual game. The major use of invisible technology would be to aid the game master role, by tracking events in the game using sensors attached to participants or objects, or embedded in the environment. This information can then be used by a game master or an automatic game manager to control the flow of events and information in the game. But invisible technology can also be useful to extend the player experience. Participants may for example wear headsets that produce a sound landscape, or 'whisper thoughts' into the ears of the participants to inform them and help them to realize the role they are playing.

User Created Content

Content creation for ordinary computer and console games is one of the major costs in game production. This is a seen as a worthwhile investment not only because it is one of the main selling points of games but because developers can control how players experience the content, guaranteeing that at least the majority of the content is experienced during the playing of a whole game. For pervasive games this is not necessarily the case, especially if the game is one that is location dependent. Location specific content is necessary, so creating the content for a pervasive game that is going to be released on a worldwide basis is not feasible; creating content that is general enough to fit any specific location may be possible but risks being bland as it does not adapt to the local situation.

Thus, enhanced reality games require new methods to handle the creation and insertion of player content. With game content we do not primarily mean created media, like sound or images, but narrative components and game play elements.

In the LARP setting, we also have the issue of player-generated technology. The addition of computational capabilities to everyday objects gives these objects the possibility to have internal states that modify their behavior and be able to change the way they change their behavior. For users to reap the full benefit from ubiquitous computing, they must be able to control the objects' behavior themselves; in essence being able to program or configure them in a direct, explicit way. Using traditional programming methods is unfeasible due to the large number of devices and would also require that all users had programming skills. Even if one disregards these two objectives, the lack of computer screen and keyboard on artifacts that hide their computational affordances would require that configuration of devices take place at a traditional computer either before an activity or by interrupting the activity. To solve this problem, techniques for end-user programming that are self-contained within the objects need to be developed.

Support for Story Adaptation

Story formation and control in Live Action Role Playing has large similarities to that in interactive narratives (Laurel 1992). The LARP 'game master' role is very similar to the role of an automatic story control engine in an interactive narrative. But there are also large differences. One lies in the level of control that the game master can exert over the players and the environment: in an interactive narrative, the game master is in full control over artificial players and events in the environment, to the level of

controlling the thoughts of players. In the LARP setting, the situation is reversed: To support free play, the game master must constantly adapt the story line to player's improvisations and spurious events in the environment (such as when it starts to rain), and is limited to weak means of influencing people in their actions, most notably through information spread. Furthermore, as opposed from typical games, there are few limits on what participants can do. In this sense, LARPs are also different from massive multiplayer online games, where there is a certain room for user improvisation in the dialogue and social interplay between players but where the game designers still are able to control exactly which events can happen and what they should lead to. Finally, a LARP game master is restricted to unreliable and incomplete information sources. The game master must be equipped with some sort of 'control room' interface, but here we cannot rely on the control room as a place; administration must be performed on location, and administrators must be able to enter social environments where ubiquitous computing systems support various activities without interrupting the 'in-game' activity.

Post-Event Documentation

Even when a game is designed to be played several times, the game can take many different directions and each game event is a new experience. Furthermore, not all players experience the same thing, even though participating in the same event. This is partly due to players being distributed in space. But it is also common to design a LARP story as one overall story and a set of substories, where each player only has a role in one or a few of the substories. Finally, we must consider that free play activities should enable people to enter and leave at will: some participants may come in late in the game, or leave for a part of the time.

These properties make it extremely interesting to the participants to obtain proper documentation of the events. One important usage of ubiquitous technology in game events is thus as a means of documenting the game, possibly in ways that help the gamers to edit the collected documentation into personal stories about the event.

5. Expectations

Our expectation for the workshop is that it will give us a unique opportunity to share our research questions with others interested in gaming applications in pervasive computing environments. Some of the research topics may be unique to our own specific area but others are definitely applicable to other application domains. We hope the workshop will uncover relationships with several application domains for gaming that we have not yet foreseen.

Furthermore we believe the workshop to be an excellent opportunity to extend our own network of contacts with people interested in similar issues. As we are always looking for opportunities to write project proposals we see this workshop as a good starting point to outline a research agenda for a joint EU proposal for instance.

6. Biographies

Jonas Söderberg is a graduate composer of electro-acoustic music from the Royal University College for Music in Stockholm, but has a broad base of creative activity where his role as a composer often mixes with that of drama teacher, theatre director and sound designer. He has worked for two different periods as head for municipal theatre schools, and when the Stockholm City School of the Arts (Scandinavia's largest culture school, with 400 teachers and 25000 pupils) was launched in 1996, he was appointed Manager of Program Development, a post he was holding until 2000. He has worked as a researcher and adviser in pedagogical and media related questions at the Interactive Collaborative Environments Lab at the Swedish Institute of Computer Science since 1997 (fulltime since 2000).

Dr Annika Wærn is a senior researcher at SICS. Annika headed the HUMLE research lab at SICS for four years (1996-2000), and has wide international research experience in the area of Intelligent Interfaces and user- and context adaptive service architectures. She has been involved in several EU projects. During the years of 2000-2003 Annika was on leave from SICS, acting as the CTO of the

newly founded company Gamefederation AB. Since her return to SICS, she has managed a newly established research theme on games.

Karl-Petter Åkesson's research interest is mainly on the demands and design of tools that are needed to fulfill the visions of Enhanced Reality Live Role Playing. What are the computational building blocks to enable players to create their own computational artifacts? What sensors are needed to capture a game event? What are the influences and needs on a platform level? For this research he is inspired by themes like ubiquitous computing, tangible interfaces, unencumbered interaction and mobility. He has worked as a researcher at the Interactive Collaborative Environments Lab at the Swedish Institute of Computer Science since 1997 and holds a M.Sc. in Electrical Engineering.

Staffan Björk has a PhD in informatics and a MSc in computing science. He was one of the initial members of the PLAY studio and the studio director between the autumn of 2001 and the autumn of 2003. He currently shares his time between being a senior research at PLAY and teaching at Chalmers University of Technology. His has been the co-chair of Short Talks & Interactive Posters at SIGCHI 2003, guest co-editor for a special issue on Ubiquitous Games in the journal Personal and Ubiquitous Computing, elected dissemination officer of the Digital Games Research Association (DiGRA), and elected president over the national Swedish multidisciplinary interest organization for human-computer interaction (STIMDI).

Jennica Falk holds a masters degree in Informatics, and has since 1999 pursued a PhD within the PLAY-group. Her research interests focus on the design of interfaces that take computing beyond the desktop; an interest she applies to interactive narratives and computer games. She has found live role-playing games to be powerful models for the types of interactive narratives and games she envisions for the future. She spent two and a half years with Glorianna Davenport's Story Networks group at Media Lab Europe in Dublin, and returned to PLAY in August 2003 to complete her thesis work and continue her research in games and narratives.

REFERENCES

Antifakos, S. & Schiele, B. Bridging the Gap Between Virtual and Physical Games using Wearable Sensors. Proceedings of the 6th International Symposium on Wearable Computers (ISWC'02), 2002.

Binsted, Kim (2000) Sufficiently Advanced Technology: Using Magic to Control the World. Plenary at CHI 2000.

Björk, S., Falk, J., Hansson, R., & Ljungstrand, P. Pirates! - Using the Physical World as a Game Board. Paper at Interact 2001, IFIP TC.13 Conference on Human-Computer Interaction, July 9-13, Tokyo, Japan.

Clarke, A. C. (1962): Profiles of the Future: An Inquiry into the Limits of the Possible. Henry Holt & Company, Inc.; Revised edition (March 1984).

Ericsson M. (2003): Enchanting Reality - big experiences on small platforms, Level Up: First International Digital Games Research Conference, 4-6 November, University of Utrecht, The Netherlands, forthcoming.

Fox, J. (1988): The Essential Moreno: Writings on Psychodrama, Group Method, and Spontaneity. Springer Pub Co; (January 1988).

Holmquist, L.E., Mattern, F., Schiele, B., Alahuhta, P., Beigl, M. & Gellersen, H-W. Smart-Its Friends: A Technique for Users to Easily Establish Connections between Smart Artefacts. Proc. Ubicomp 2001, Springer-Verlag LNCS 2201, pp. 116-122, 2001.

Laurel, B., Computers as Theatre. Addison-Wesley 1992.

Regan L. Mandryk, Kori M. Inkpen. Supporting Free Play in Ubiquitous Computer Games. UbiComp 2001 Workshop on Ubiquitous Gaming. Atlanta, Georgia, USA, October 2001.

Rydenhag, T. Design for Free Play. M.Sc. Thesis in Interaction Design, Chalmers Technical University, 2003.

Schneider, J., Kortuem, G. How to Host a Pervasive Game – Supporting Face-to-Face interaction in Live-Action Roleplaying. 2001 Ubiquitous Computing Conference, Workshop on Designing Ubiquitous Computing Games (UBICOMP 2001), 2001, Atlanta, Georgia.

Vygotsky, L. (1978). Mind in Society: The Development of Higher Mental Processes. Cambridge, MA: Harvard University.