# Around Play and Interaction Design Research

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**Abstract.** The paper presents an inter-faculties experience stemming from the common interests of researchers and designers in ludic interactions between people and interfaces. The new territories mapped by the game and Ambient Intelligence (AmI) paradigms in everyday communication interfaces are a shift in how design incorporates new functions and meaning. Design itself has become a way to play with artifacts, complex systems and networks. Moving beyond formal and aesthetical use of games, it is possible to bring different competences to reflect together on the interviewing of game and play elements in the design of the daily spaces, objects and activities. The question is how the play paradigm can improve the relationship between people and ambients and, as a consequence, the issues of Interaction Design in the AmI field of study. In this paper we present our initiative to build a multidisciplinary design group. From our synergy three particular areas have been identified as new design sectors in which games are involved in person's environments.

**Keywords:** Interaction Design, Game Studies, Urban Games, Board Game analysis, Alternate and Augmented Reality Games.

## 1 Introduction

Nowadays, the daily-life environment can be looked as an overlapping of different realities populated by people, digital networks, hybrid practices and ubiquitous technologies. At the same time, technologies that are integrated into a person's environment or on a person's body as well are central in the Ambient Intelligence discourse. Systems that are sensitive to individuals, responsive to human intervention, able to adapt their function and stimuli around us, nonintrusive, ubiquitous and intelligent probably will constitute our near future sensor-based interface. In our opinion, the scenario configured conveys the human participation as a voluntary act to play and start a conversation with an interface system. This inkling can be applied through the game design approach. The real world empowerment with engaging interfaces - gesture, tangible or sensors equipped - and gameplay elements - such as

R. Wichert, K. Van Laerhoven, J. Gelissen (Eds.): AmI 2011 Workshops, CCIS 277, pp. 218–223, 2012.

metaphors, rewarding mechanics, narrative paths, as well as winning contexts - can have a positive impact in designing everyday interactions. This background moves Around Play research and addresses the group members design and teaching activities for envisioning the forthcoming interfaces. Through the investigation of the interviewing of interaction design and game-play design the group purpose is to meet and explore the contemporary mixed people expectations in an unobtrusive manner.

Without overlooking critical and ludic approaches to design and behaviourism the Around Play glances at the Ambient Gaming as an opportunity to understand how multiple competences could be conveyed in a meaningful way.

## 2 Why Do Research Around Play? Objectives and Challenges

In the contemporary world we live in, tangible and hybrid can be noticed as two important aspects that characterize the everyday interfaces. In this reality, the Around Play research group investigates the positive impact of the game-play elements in the design practice of future human interactions in environmental interfaces augmented by transparent technologies.

Walking around Play and Interaction Design field of studies the research group is focused on the exploration of a multidisciplinary areas discovering and experimenting the interconnected domains of knowledge.

In this way, the research activity dwells upon the relationship between the game system and the human play attitude; a wide area, where Around Play Research Group follows a compass built on our studies and research, constantly growing, looking for answers to many different questions, such as:

- In which way game mechanics engage people?
- What are the game constructive components?
- How the game and play elements can enrich non-game environments?
- How can ludic engagement (and consequence) influence user behaviours?
- How can we use the Play paradigm to stimulate the lateral thinking capabilities and to improve user involvement in the interaction dynamics?

## 3 Areas of Interest

The Around Play areas of interest involve different topics, such as board games analysis and design, gamification concept and clues, ambient and urban games, alternate and augmented reality, the playful values of interactive systems and extended game interfaces.

Our knowledge base is further enriched and shared in a truly inter-disciplinary space, peripheral as well as dynamic. Being an inter-faculty research group, we foster activities and projects for encouraging reflections and discussions around the game and play design field of studies in different domains, ranging from basic action rules and mechanics to aesthetic aspects of game elements and interfaces.

Each member of Around Play group is involved in her/his Faculty research projects and teaching activities, being able to coordinate local occupation with this inter-athenaeum group interests.

Group members are locally engaged in different projects, where Interaction Design, in its many declinations and shapes, is always involved. For instance, a topic of great interest is the deep analysis of mixed games spatiality dimensions; how the real space perception can change within the play experience, and how the game environment itself can affect the user's spatial experience.

Our approach to classroom activities is strongly project-oriented, being them Ateliers, Laboratories as well as Design Courses. During our teaching activities we juxtapose practical experience to theoretical lectures, giving reinforcement to the learning process, and often we use student's works as critical instrument for starting the discussion on the mutual comparison and game design reflections in classrooms.

The Around Play research areas draw on the experiences and projects of the research members which address the cultural, social and design issues in the development of meaningful exchanges between the Play and Interaction Design field of studies. We are now focused in three main projects:

### 3.1 Playful in Motion Experience

This project aims to integrate and coordinate research and practical workshop experiences on the areas of Exercise Games by managing many disciplines and professional knowledge involved and design-based backgrounds. The core concept starts from the noticed interests on mobility and personal healthy experiences linked to the wide research on the gaming platforms and the social network potentials. While the experiences on fitness and sport activities supported by digital technologies are mostly limited on the training and coaching practices, stimulating solely physical aspects, next-gen gaming consoles are now developing persuasive and also wearying entertaining application. In this current situation we are investigating how to improve exercise activities though the ludic engagement and a more complete motion experience suited to merge both physical and mental aspects in order to give users a motivational context for a playful exercise practice. In this way the ongoing project includes workshop initiatives that aim to structure a network of inter-sharing between researchers and industry professionals.

### 3.2 Urban Games for the Augmented City

This research area explores and experiments the play-factor as a stimulus to design playful mechanics for interacting with and through the augmented city. It investigates how to support the contemporary urban gamer lifestyles combining several aspects: psychogeography, pervasive games, social games, methods and techniques for the city investigation, transmedia storytelling and cultural aspects of urban life as flânerie and rhabdomancy. The group's empirical study is supported by design concepts and educational activities with the main focus on the game-interaction design.

[GIUC-MI] is a project conceived in this direction. It structures an urban game for the social and territorial communication of the city of Milan. The project designs a system for the tourists immersion in the city quarters involving several artisan workshops of Milan and their identities and historical backgrounds, that would otherwise remain unknown. During the city exploration the players have to hunt the workshops and interact with the artisan dwellers in order to reach points and discover the hidden side of Milan. The project includes QRcodes located outside each place and a web supporting system holding game materials and data.

### 3.3 Game Analysis and Design

Games and overall social games have the potential to predispose users for learning - dynamics, context or contents - in a playful way. This powerful focus point move the research group to test methods and processes involved in the design practice. As simulation of realities, each game can be adopted as interactive microcosm and used to understand bigger interaction system in many different design areas. In this regard we have found the Laboratory of Game Analysis (LGA) in which multicultural approaches, analytical and interpretative tools are adopted for structuring reusable models and to test game prototypes. The LGA is a recurrent collective game analysis session which offers to heterogeneous focus groups a variety of game-play opportunities for approaching projects in a design perspective. People, students, friends as well as designers and researchers participate at the play-sessions where we open discussions on the play experience associate to the analysis of the design elements and relationship rules trigged by the game experience. LGA initiative is mainly oriented to board games and analog games for the understanding and the consequent definition of patterns and constructive game elements.

## 4 The Research Group

The Around Play and Interaction Design Research Group is an inter-faculty and international research team focused on the design and evaluation of games and play challenges, promoting a cross-sectional approach to research in Interaction Design and Game Studies. It aims to enable and provide efficacious support to students, makers and researchers in undertaking novel meaningful approaches to design interactive environments (digital, analogical and mixed). Team activities are intended to facilitate culturally and qualitatively oriented game design research, providing both traditional and experimental ways for investigating and exploring game elements and player's engagement.

The group takes birth in the long-term research and teaching relationship among the three founders; they share interests and approaches although referring to different athenaeums: Laboratory of Visual Culture - IDLab - SUPSI (Switzerland), INDACO Department and School of Design - Politecnico di Milano (Italy) and the University of the Republic of San Marino (San Marino).
Main members are:

**Vanessa De Luca**
Vanessa is a researcher and designer. She completed a Ph.D. in Industrial Design and Multimedia Communication at the Politecnico di Milano (2009, Italy) where she has started to investigate the game paradigm in interaction design field of study. Her current research centers on: player's experience in non-ordinary game environments, urban gaming and the intertwining of the game/play elements and mechanisms in the daily life.

**Maresa Bertolo**
After her academic degree in Computer Science in the field of Computer Graphics and Animation, the interest for Interaction Design brought her to the Politecnico di Milano, where she is now tenured researcher; her research fields are Computer Graphics and Animation (2D, 3D and S3D); Stereoscopy; Game Studies; Interaction Design.

**Michele Zannoni**
He graduated at the University Institute of Architecture in Venice, with an experimental thesis entitled "Digital Didactic Modules". He has taught at the universities of Politecnico di Milano and IUAV of Venice (Italy). He is a professor of "Digital Representation" at the University of the Republic of San Marino. As designer he works at the "Studio Visuale", where his activities and scientific research are focused on new media and interaction design projects.

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