

# GHItaly18 - 2nd international workshop on Games-Human Interaction

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## ABSTRACT

This short paper presents the second international workshop on Games-Human Interaction - GHItaly 2018. The goal of this series of workshops is to focus on advanced aspects of the design and development of game interfaces. The quality of the resulting interaction is a highly relevant issue for creating an engaging and satisfactory user experience, especially when deeply multidimensional artefacts such as video games are concerned.

## CCS CONCEPTS

• **Human-centered computing** → **Human computer interaction (HCI); Interaction design; Mixed / augmented reality; Graphical user interfaces; Virtual reality; Interaction devices; Interaction techniques; Interactive systems and tools; Interaction design process and methods; Collaborative and social computing; Ubiquitous and mobile computing; Visualization; Accessibility**; • **Social and professional topics** → **User characteristics**; • **Computing methodologies** → **Artificial intelligence; Computer graphics**; • **Applied computing** → **Arts and humanities**; • **Software and its engineering** → **Interactive games**;

## KEYWORDS

HCI; game design; usability; biometric measures for interaction; artificial intelligence; immersive VR systems; social interaction; distributed and online systems; player experience; storytelling; gamification

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## 1 INTRODUCTION

Video game design has been long considered a commercial only activity, with the only aim of generating amusement for users, and profit for the designers and producers. However, with the increasing technological quality and affordability of hardware equipment and the possibility to exploit natural interaction paradigms, the application range of video games has widened from pure entertainment to a number of formerly unpredictable applications, and their socio-cultural influence. As a consequence, it is indubitable that this fascinating field exploits research results coming from many disciplines, apparently far from each other, from computer graphics to psychology and neurophysiology. In fact, video games were born in the academy [13] and are intrinsically multidisciplinary artifacts, requiring transversal expertise, from the obviously ubiquitous computer science, to music and visual art, to the various areas of design, project management and marketing, till to mathematics, physics, psychology, and economy. Finally also in Italy video game design and development have recently entered curricula in the Italian public university.

User experience is the reference point of view, which drives the creation of artifact whose purpose is not only to entertain and give fun [4, 5, 7, 12].

The contributions to the workshop have been invited to explore the area in its broadest sense.

## 2 WORKSHOP TOPICS

The possible topics, focusing on game design, include, but are not limited to, innovative proposals on advanced interaction paradigms and models, natural and context-aware interfaces, inclusive interfaces for users with special needs or needing to perform rehabilitation activities, and interfaces for social interaction and cooperation. Human-Computer Interaction principles should be applied to game interfaces taking into account the peculiar characteristics of this kind of applications, yet maintaining the basic principle of user pleasant engagement. The activities that can find a meeting point in game design are very diverse, from those traditionally related to gaming; e.g., the creation of immersive graphical environments and virtual and Augmented Reality, and the implementation of full body interaction, to the applications of artificial intelligence to game design and the inclusion of biometric measures into game interaction. On the serious side, educational and serious games, and interactive game-based rehabilitation, represent a source of new

psycho-physiological research to increment the effectiveness of the game-based approaches.

### 3 GHITALY18 CONTRIBUTIONS

The workshop discussion benefit from the interesting keynote intervention by Prof. Fabio Pellacini (Sapienza University of Rome - Italy) which discussed how to design and implement prototypes that allow seamless collaboration for editing meshes and game levels, and the challenges in developing these types of systems.

The remaining contributions collected by GHItaly18 can be grouped into three main areas: *assessing player experience in VR*, *interface design impact on user experience* and *applied games and gamification*. The first area focuses especially on investigating how and to what extent the introduction of Virtual Reality-based interfaces could affect the user experience. In particular, two synergic contributions dig into the aspect related to the definition of standardized approaches to evaluate the user experience in VR-enhanced environments. Norman [11] tackles the problem of assessing the drivers of discomfort deriving from playing a game in VR: the scope of his work is to define and validate a standardized questionnaire to evaluate the (negative) impacts of VR on the gaming experience. In the same vein, Barricelli & De Bonis [1] presents a pilot study aimed at validating the Semiotic Framework for Virtual Reality (VR) usability and user experience evaluation (UX). The framework wants to offer a theoretical model for VR applications classification and a combination of evaluation methods and a study protocol to be used for testing usability and UX in the VR field. The second group of works tackle the issue of the impact of the user interface design on the player experience. The main idea is to investigate to what extent the effort put in designing accurately the user interface for a game can affect how the player enjoys the experience and, consequently, to try to define some sort of key lines or best practices to follow when approaching this type of design. The contribution by Bellini [2] aims at shedding some light on the impact of the interface on the narrative elements of a video game. Actually, user interfaces are substantial parts of the gamer's experience, but they are not only showing useful information to the player: they can also be used to enhance storytelling; hence their design should be aware of issues of narrative theory. A slightly different perspective is that adopted by Mariani & Mattiassi [10], which focus their attention on the user experience in VR-based games, in order to put the accent on how an effective diegetic interface facilitates the player in effortlessly understanding the virtual world and reaching immersion. The last, more numerically consistent group of works concentrates in issues in the field of the so-called applied games (that is to say video games whose main aim is not only the mere entertainment, such as educational games, exergames, and the like) and/or on the use of games-related technologies in other fields. Celata et al. [3] tackles the technical convergence of the movie and gaming industries by describing the design and implementation of a tool for the interactive production of previsualizations, implemented as an extension of the Unreal 4 game engine. The previsualization step of the movie production pipeline helps to visually evaluate the potentiality of a scene before the final production, hence it has a crucial importance in the productive process. A different perspective is that of Liberti et al. [8], whose purpose is to implement a platform able

to recognize and employ human emotions in an interactive game: The EmoBrain Interface (EI), which has been used in the context of a serious game aimed at allowing players to manage their own emotional state. The issues of defining a viable solution to design and propose psychiatry exercises from a remote location has been investigated by Maggiorini et al. [9], by offering the possibility to tailor exergame on the requirements of each patient and monitor them in an automated way exploiting technologies for gaming. The final goal is to increase the quality of the therapy and improve the recovery time. Last but not least, Knutas & Hynninen [6] underline that in multi-user socio-technical environments the benefits of gamification can be quantified in terms of interactions between users and present a case for using social network analysis to analyze the impact of gamification and demonstrate how it can be used to analyze the impact of gamification at community level.

### 4 CONCLUSIONS

Though long banished in the context of pure amusement, video game design is a technically and culturally rich activity. As such, it entails expertise from different research fields, ranging from interface design and computer graphics to neurocomputing and psychological research. It is therefore challenging and attracting for both researchers and practitioners, even before than for users. Different investigations can stem from the issues raised from different uses of games, which are characterized by a rich set of interconnected facets. Design strategies, game aspects like playability and engagement, and user evaluation, are only general lines along which research can proceed. More specific investigations are required when games are introduced in educational, rehabilitative or training contexts. This workshop aimed at setting up a common venue for researchers in the different areas involved.

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