



**11th International Conference
on Videogame Sciences and Arts**

Book of Abstracts

Videojogos 2019 - 11th International Conference on Videogames Sciences and Arts: Book of Abstracts

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Videojogos 2019

Book of Abstracts

Ten years, and ten years more

Videojogos is an annual conference on videogame sciences and arts, promoted by the Portuguese Society of Video Games Sciences (SPCV). Since its first edition, in 2009, the conference has been promoting the scientific gathering of researchers and professionals in the expanded field of videogames.

As in the first edition, Aveiro once again holds the conference. The 11th Conference on Videogame Sciences and Arts – Videojogos 2019 takes place in the University of Aveiro, Portugal, during November 27-29. The event is co-organized by the Department of Communication and Art of the University of Aveiro (DeCA), DeCA's DigiMedia Research Center and the Portuguese Society of Video Games Sciences (SPCV).

This year, 10 years after the first conference, SPCV and the co-organizers decided to convert the conference into a full international event, with English as a working language. As one of the outcomes of this decision, the proceedings of Videojogos 2019 will be published by Springer in their "Communications in Computer and Information Science" (CCIS) book series, part of a post-conference volume with the number 1164.

This Book of Abstracts is more than a shortened version of the proceedings. Besides abstracts from the 20 selected papers that will be published in the book series, it contains abstracts from the research posters (8) and videogame demos (9) accepted for the conference, as well synopsis for other activities held at the conference such as keynotes (2) and workshops (3). Thanks to UA Editora, we were able to present this book in time for the conference, providing an overview into the diversity of contributions gathered in the videogame context.

We would like to thank the scientific board for their contribution to guarantee and deliver the highest scientific quality, allowing the outstanding relevance of this selection. We also would like to thank the program chairs (demo, poster and workshops) and the organization team for all their concerns and efforts in the organization, an extremely important contribution for the overall success of the Videojogos 2019 Conference.

Finally, a note of appreciation to the American Corner of the University of Aveiro, which provided essential logistical support, namely by ensuring the presence of Professor Ernest Adams as Keynote Speaker and to the University of Aveiro publisher, UA Editora, for their support and collaboration in this publication.

Tânia Ribeiro, Silvino Martins, José Nunes

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Keynote speakers

Planning and Processes for Game Development



When commercial game development goes wrong, it usually goes wrong due to process failures. Developers make avoidable mistakes in planning and organizing their projects that lead to delays and cancellations. In this talk, Ernest Adams will explain how to plan your development and how to avoid the pitfalls that cause games to fail before they are even released.

Teaching AI through retrogaming



Computer Science is in high demand, yet students do not have the necessary motivation and drive to go through theoretic AI concepts. Book examples are outdated, students struggle to understand the use cases. On the other hand students love computer games, and feel a natural drive to grasp the algorithms behind them. State-of-the-art computer games are nonetheless too complex for beginner students to grasp. Diogo Gomes will explain how he uses classic computer games to teach AI algorithms and keep his students fully motivated.

Workshops

Being a 'Visual Novel' storyteller with Fungus Unity 3D



The Workshop "Being a 'Visual Novel' storyteller with Fungus Unity 3D" aims to provide the skills needed to design and develop "visual novels" and graphic adventures using the Unity Fungus extension. It is intended for beginners at Unity, interested in Interactive Narratives. This Workshop is divided into the following modules: 1. What are Visual Novels, 2. Examples of Visual Novels, 3. Designing Visual Novels, and 4. Developing Visual Novels in Unity 3D.

Gamers4Nature - Exploring a Game Creation Toolkit



Along two hours, participants will be challenged to build the narrative of a game focused on the theme "Microplastics". For this participants will use the game element cards - which contain detailed explanations of each game element - and a Rapid Game Design Document, with information on how to use and articulate the several cards. As it is possible to explore the game element cards freely, the Rapid Game Design Document will be used only if participants decide to use it. A set of Cards presenting specific information on the theme of microplastics will be given to each participant, releasing them from the task of finding information about the theme.

Introduction to modern board game design



Introductory workshop about hobby board games, known as modern board games. In the session will be held sequences of games and presentation of content related to the history of board games, with the associated contemporary cultural phenomenon and the main mechanics and themes, considering the main types of games existing and produced today. It is expected participants will be able to understand the differences in design and characteristics and be able to research more information about the theme of board games and application in the development of new projects.

1.

Selected Papers

This selection includes papers from academia, research institutes, industry, and other institutions from 7 countries (Brazil, Finland, India, Portugal, Spain, UK and USA) that resulted from a 40% acceptance ratio and a selection of papers in the topics of e-Sports, Game Criticism, Games and Theory, Tabletop Games, Uses and Methodologies.

These contributions address the novel research and development outcomes in the videogame context, gathering in itself several different scientific areas, such as Multimedia, Communication, Technology, Education, Psychology, Arts, among others.

1.1

Games and theories

'Games and Theories' consists of four papers that discuss the use of gameplay elements and the transcendence in fiction and reality. In 'First-Person Refugee Games: Three Design Strategies for Playing the Stories of Refugees and Asylum Seekers', Victor Navarro Remesal and Beatriz Zapata analyze games as a biographical medium and a representation of societal stories. Regina Seiwald advocates games as fiction and an illusory medium in 'Games within Games: The Two (or More) Fictional Levels of Video Games.' In the same vein, Mateo Torres propose a Mechanics - Performance - Fiction (MPF) framework for the analysis of ludic artifacts. Finally, Su Hyun Nam highlights the importance of rules in videogames and control in Digital Societies.

1.1.1

First-Person Refugee Games: Three Design Strategies for Playing the Stories of Refugees and Asylum

Victor Navarro-Remesal and Beatriz Pérez Zapata

Abstract: This paper aims to offer a critical analysis of recent games by and/or about refugees, with a strong focus on the narration and reconstruction of personal experiences and biographies. We have selected three European (French and German) productions and a global one (created by UNHCR), describing the journeys refugees fleeing their country: Finding Home (UNHCR, 2017), Bury Me, My Love (Playdius Entertainment, 2017), and Path Out (Causa Creations, 2017). We also consider a fourth game: North (Outlands, 2016), an experimental cyberpunk indie game that presents well-known bureaucratic and systemic obstacles for refugees. This paper contextualizes the media representations of refugees and studies these selected games first by describing their conditions of production and communicative aims, including their intended effect on players and their calls to action (if any) beyond the act of playing. Secondly, we consider the narrative design choices they employ, in particular, their narrators and focalizers, paying attention to if and how they give voice to actual refugees. Lastly, we study the genres, goal structure, and mechanics of interaction they use, separating them in three main ludonarrative strategies: interface-based newsgames, reality-inspired interface games, lost phone newsgames, autobiographical JRPG-like, and experimental cyberpunk first person adventure. In this, we observe how these works apply the language of videogames to bridge their ludofictions to the real world stories behind them.

Keywords: Refugees, Persuasive Games, Compassionate Play

1.1.2

Games within Games: The Two (or More) Fictional Levels of Video Games

Regina Seiwald

Abstract: Video games that incorporate other games in their game-world create interlacing fictional levels. These can be used to engage with concepts of “gameness” from within the game itself without abandoning the aesthetic illusion created by the macrogame, in which the minigame is embedded. In my paper, I delve into the question why we are willing to immerse ourselves in video game worlds even if they contain elements that overtly emphasise the fictionality of these games. I explore concepts of illusion as well as interlacing fictional levels from a theoretical perspective before I research various modes of games within games with or without an impact on the gameplay of the macrogame as well as their relationship to illusion. The outcome of my paper will be a comprehensive study of the critical potential of minigames, which is accomplished by discussing a large corpus of different video games.

Keywords: Minigames, Narrative video games, Illusion, Make-believe, Mise-en-abyme, Chinese-box structures

1.1.3

MPF Framework:

An Aesthetic and Phenomenological approach to Ludic Difficulty in Video Games

Mateo Terrasa Torres

Abstract: Challenge is an intrinsic part of play. From the academy it is presented as one of the basic elements of its language, as a set of obstacles that oppose the player's advancement and, at the same time, as a motivator to achieve personal triumph. In this sense, the domination of the ludic system is related to the set of rules that make it up and the mechanics that give agency to the player. But challenge can also be shown differently, as an hermeneutic obstacle or ethical decisions, such as narrative puzzles, disempowerment fantasies or the feeling of vertigo. All these elements are fundamental pieces of the challenge in a broad sense and constitute the ludic difficulty aesthetics. This phenomenological study of video game addresses the question of ludic difficulty from personal perception and experience, that is, of every significant element for the construction of the game aesthetics. From this perspective, the ludic difficulty aesthetics consists of the rules system, the player's performance, and the fictional elements that contextualize the gameplay. As a result, we present the aesthetic and phenomenological MPF framework for the analysis of ludic difficulty and challenge, which is divided into three different and interconnected patterns: mechanics, performance and fiction.

Keywords: Refugees, Persuasive Games, Compassionate Play

1.1.4

Rules of Videogames and Controls in Digital Societies

Su Hyun Nam

Abstract: Rules in games are one of the most significant aspects to characterize games, and they allow players to temporarily live in a virtual world, which is separated from the real world. The author questions how the implication of rules in games has been altered based on the transformation of their forms from analog to digital. Furthermore, this paper analyzes rules and controls in contemporary technological societies by focusing on how video games are constructed as well as how contemporary game players experience them in the digital space.

Keywords: Rules, Magic Circle, Videogames, Digital Societies, Controls

1.2

Table Boards

'Table Boards' advance current research on tabletop game-playing and its importance in game design and playtesting. In 'Towards a Tabletop Gaming Motivations Inventory (TGMI)', Mehmet Kosa and Pieter Spronck discuss the motivations for tabletop game play and propose a tabletop gaming motivation inventory to assess these motivations. Micael Sousa and Edgar Bernardo recall the origin and characteristics of modern board games, taxonomy and current trends in 'Back in the Game: Modern Board games.' Seeram Kongeseri and Christopher Coley describe the process of developing a collaborative tabletop game for social problem-solving and civic engagement. This section ends with the development of a toolkit to game design proposed by Pedro Beça, Rita Santos, Ana Veloso, Gonçalo Gomes, Mariana Pereira and Mónica Aresta.

1.2.1

Towards a Tabletop Gaming Motivations Inventory (TGMI)

Mehmet Kosa and Pieter Spronck

Abstract: Tabletop gaming is currently experiencing a golden age. The size of the tabletop gaming industry and the number of people engaged with the hobby are at a peak, and are still increasing. However, what motivates people to engage with tabletop games is not well studied. This study aims to understand the motivations for tabletop game play; it does so by introducing a questionnaire, called the tabletop gaming motivation inventory (TGMI), to measure these motivations. The inventory is based on literature, in particular literature which deals with similar inventories used to investigate video gaming motivations. We carried out a survey with tabletop game players (N = 867). Our inventory is validated using factor analyses, which lead to a final questionnaire consisting of 11 factors based on 39 items. Moreover, we investigated how these motivations vary with respect to prior experience of players, their frequency of play and geographical locations.

Keywords: Tabletop Gaming, Player Motivations, Player Experience, Questionnaire Building

1.2.2

Back in the Game: Board Games are Modern

Micael Sousa and Edgar Bernardo

Abstract: This research intends to contribute to extent the understanding of the renewed interest in analog games phenomenon. We expose the origin and characteristics of modern board games, taxonomy and timeline and demonstrate the growing interest in the subject by presenting current trends, main contributions, themes and some potential research gaps for future researchers, all via a bibliometric survey in the Scopus and Web of Science Databases.

Keywords: Analog Games, Board Games, Phenomenon

1.2.3

Development of a Collaborative Tabletop Game for Social Problem Solving: Serious Games and Civic Engagement

Sreeram Kongeseri and Christopher Coley

Abstract: . This paper presents research on a tabletop game design for enhancing focused discussion strategy creation, engagement motivation, planning and resource allocation, and service leadership through collaborative gameplay. Background: Although the field of serious games has developed over the last three decades, the potential of games to be used as civic engagement and educational tools still lay unrealized. People in rural communities in India experience a range of barriers for constructive engagement. Serious games have been used to address the issue of civic engagement effectively. In this paper, we present a case study of Aadarsh Gaon, build your ideal village, a tabletop game where participants work together to discuss strategies to solve social issues in their community, in order to win the game. The paper discusses the concepts in the game, evolution of the game during playtesting and aspects of collaborative gameplay. Results: Three phases of playtesting with diverse participants suggest that the game could trigger focused discussions on strategy creation to solve social problems, but do not indicate significant progress in attitude towards service leadership, and planning and resource allocation. We conclude that serious games with purposeful game design elements could lead to constructive civic engagement.

Keywords: Serious Games, Collaborative Games, Civic

1.2.4

Supporting the game construction process: development of artefacts in the context of a Toolkit to

Pedro Beça, Rita Santos, Ana Veloso, Gonçalo Gomes, Mariana Pereira and Mónica Aresta

Abstract: The Gamers4Nature project aims to deliver a set of strategies to empower and encourage youngsters (upper-secondary and undergraduate students) to actively participate in games creation while raising knowledge about environmental preservation and biodiversity conservation. To accomplish these goals, a Toolkit to Game Design is being created, containing a set of resources and tools aiming to help in the creation of mobile digital games, namely a Game Construction Cards Set. This paper presents the creation process of the project's general identity and its concept adaptation to the Game Construction Cards Set, which required a deep understanding of the target audience and the development of a strategy to engage the participants in its activities. A general identity was defined, where a specific "language" to reach this audience was designed and a brand to support it was created. This "language" was applied in all graphic materials developed since day one, namely to the Game Construction Cards Set – focus of this paper. The validation of the prototypes was made through focus groups, using an iterative design approach. The focus groups participants' inputs were integrated in the design and helped with the graphic elements' evolution, allowing the project to maintain a coherent strategy in all its representations that exceeds its graphic language and a deeper identification with the developed artefacts.

Keywords: Toolkit to Game Design, Gamers4Nature, Dynamic Brand, Graphic Identity, Iterative Design

1.3

e-Sports

eSports and group competition in a multiplayer environment are another topic highlighted in this conference. Whereas Cátia Ferreira presents the Portuguese eSports media ecosystem, a literature review on game design decisions and communication theories applied to eSports are identified by Gabriel Canavarro, João Sequeiros and Farley Fernandes. Furthermore, the negative perspectives on the use of videogames and brands to sponsor eSports are discussed by Bruno Freitas, Ruth Espinosa and Pedro Correira. Group Dynamics in eSports is then illustrated by Tarcizio Maxedo and Thiago Falcao, who present the (Semi) Professional League of Legends Amazonian Scenario.

1.3.1

The Portuguese eSports ecosystem: An exploratory approach

Cátia Ferreira

Abstract: eSports are an emerging phenomena worldwide. I would like to argue that eSports are one of the activities that best illustrate the dynamics of network communication [1, 2]. What had appeared as a digital media phenomenon, shortly became a legacy media content. Media companies throughout the world are investing in broadcasting eSports competitions and establishing partnerships with individual content producers that are contributing to the emergence of a new professional activity - digital games streamers [3]. Additionally, eSports are asserting themselves both as a cultural and creative industry. They are part of a complex network of media, game producers, players, and individual digital content producers. Based on a qualitative methodology having document analysis as primary data collection method, this paper intends to discuss the growing relevance of eSports as a networked media phenomena and to present the particular case of Portugal. Data from an exploratory research will be presented aiming at mapping the Portuguese eSports media ecosystem.

Keywords: eSports, Networked media, Portugal

1.3.2

Game Design decisions and Communication theories applied to eSports: a

Gabriel G. Canavarro, João Bernardo F. Sequeiros and Farley Fernandes

Abstract: This paper aims to help Game Designers and video game researchers have a better understanding about what are the key motives for the success of eSports broadcasts and why people are more and more into spectating professional video game players perform. As there are few published works regarding the motivations of a eSports spectator, we decided to execute a review on the studies regarding players' favorites game design decisions, and communication studies about the different interests of a spectator so we could extract similarities of those relevant topics. A first data pool of 320 resources material were gathered at the beginning of the research, and ended with 16 investigations published after 2007. We stated how communication and game design studies complement each other when it concerns delivering a better entertainment experience for the eSports spectators.

Keywords: eSports, Game Design, Game Streaming, Game Ranking, Uses and Gratifications

1.3.3

How Society's Negative View of Videogames Can Discourage Brands from Sponsoring Esports

Bruno Freitas, Ruth Contreras-Espinosa and Pedro Correia

Abstract: The purpose of this research was to identify the main motives that contribute to society's negative view of videogames and that present a risk to the eSports sponsors' image. To achieve this, an exploratory, qualitative, and integrative literature review was conducted. According to the theoretical data, there are four main reasons why society has a negative perception of videogames. It is commonly believed that: (1) gaming is an unproductive activity, (2) violent videogames incite aggressive behaviors, (3) videogames lead to gaming-addiction, and (4) eSports lead to eSports-related gambling addiction. However, while the literature presents convincing evidence that gaming can create addiction and that eSports can promote gambling addiction, there is no conclusive evidence to assume that violent videogames lead to aggressiveness and there is evidence showing that playing videogames can be a productive activity. Nevertheless, these four beliefs are a threat to the eSports sponsors' image and may lead them to cancel their existing sponsorships or lead other brands to not want to sponsor eSports to prevent being associated with these negative notions. This research will help expand the minor literature on eSports sponsorships and advance the knowledge of why some eSports sponsorships are terminated and why some brands may be reluctant to sponsor eSports.

Keywords: eSports, Sponsorships, Market analysis, Marketing, Branding

1.3.4

Group Dynamics in Esports: Delving into the (Semi) Professional League of Legends

Tarcizio Macedo and Thiago Falcao

Abstract: This article discusses the processes of construction of cohesion and group membership in a semiprofessional team of esports in the city of Belém, capital of the state of Pará, in the Brazilian Amazonian territory. This effort discusses what characterizes the progression and union of a particular team in a local competitive scenario in which ephemeral teams predominate. Based on an eleven-month ethnography with a set of players engaged in professional competitive practice, and through observations from field research, we compiled a set of 12 essential characteristics displayed by the team. Also, this study points to the development of an ethos of professionalism in a peripheral context, indicating the existence of an Amazonian esports scenario – in the northern region of Brazil, with emphasis in Belém, Pará. The results indicate the maintenance of a social fabric composed of a variety of other elements that constitute an ethos of group camaraderie that plays a central role in the competitive dynamics that underlie the team as a group.

Keywords: Esports, Professional Gaming, Group Dynamics

1.4

Uses and Methodologies

A number of papers also discuss innovative uses and methodologies in game design (Sect.4). Daryl Marples, Pelham Carter, Duke Gledhill and Simon Goodson report on 'Broad Environmental Change Blindness in Virtual Environments and Video Games.' Virtual Reality Arcades and its usage habits and frontiers for exergaming is presented by Tuomas Kari. In 'Jizo: A Gamified Digital App for Senior Cyclo-tourism in the miOne Community', Cláudia Ortet, Liliana Costa and Ana Veloso suggest the use of a co-designed gamified digital app to support Senior Cyclo-tourism. Similarly, Jackeline Farbiarz, Alexandre Farbiarz, Guilherme Xavier and Cynthia Dias highlight the role of gamification but in this case, for graphic education.

1.4.1

Broad Environmental Change Blindness in Virtual Environments and Video Games

Daryl Marples, Pelham Carter, Duke Gledhill and Simon Goodson

Abstract: For almost 120 years, it has been demonstrated in literature that humans are susceptible to many different types of change blindness; essentially if a change in a visual scene is not sudden or obvious, it fails to be detected. Research utilising video game environments provides the opportunity for the study of change blindness during dynamic and interactive tasks. This study examined participant perception of gradual broad changes to both colour and textural information across surfaces and objects in a video game mimicking that of a First-Person adventure or point and click game/genre escape room task. 119 participants were asked to solve a room escape puzzle, results demonstrated that perception of gradual textural changes to an environment across a range of decreasing durations (90s, 45s, 22.5s & 11.25s) were detected only by a very small proportion of participants. (4.20%). There was no significant effect of the variation in time on detection rates.

Keywords: Attention, Change Blindness, Virtual, Escape Room, Change Detection

1.4.2

Virtual Reality Arcades: A Study on Usage Habits with Emphasis on Digital Gaming

Tuomas Kari

Abstract: Virtual reality (VR) and VR gaming have seen substantial advancement during the recent years both in terms of technological development and the number of users. A notable rise has also occurred in the number of VR arcades. Despite the growing academic interest towards VR and VR gaming, there is still a dearth of understanding on the usage aspects of VR gaming and VR arcades. To address this gap, this study explored the habits of using VR arcades with emphasis on digital gaming. Specific focus was set on investigating differences between gender, age, and physical activity background. The study was exploratory in nature and based on a quantitative analysis of data collected from 126 respondents in Finland. The findings of this study bring new knowledge to this emerging subject, and thus, extend our understanding on the habits of using VR arcades and VR games. The study shows that digital gaming is clearly the most popular form of entertainment in VR arcades. Also, for the vast majority, the main purpose to visit VR arcades is gaming for fun, and it is more popular to visit VR arcades together with others than alone. The findings also demonstrate how VR gaming can be a new frontier for exergaming. Gender, age, and physical activity background differences are discussed. As a practical contribution, the findings are used to present implications for VR gaming and VR arcade stakeholders.

Keywords: Virtual Reality, VR, VR arcade, Digital Gaming, Exergaming, Entertainment, Usage Habits

1.4.3

Jizo: A Gamified Digital App for Senior Cyclo-tourism in the miOne Community

Cláudia Ortet, Liliana Costa and Ana Isabel Veloso

Abstract: The continued growth of the aging population has led to a greater interest in the subject of gerontechnology. In the case of the digital game industry, senior citizens are becoming better consumers, so the role of games to their wellbeing are becoming more important in order to meet their needs and preferences. Still, there is a general lack of information and products that address cyclo-tourism, and, so far, almost non attention was given to the way gamification can motivate senior citizens to this matter. The aim of this research is to understand how gamification interventions can motivate senior citizens to adhere to cyclo-tourism. This paper reports on the results obtained from the literature and related work, as well as the involvement of two different groups of senior citizens aged 55 or over (7 focus group participants from a Portuguese University of Third Age, and 31 cyclists' interviewees from 8 countries), using a Development Research method. Based on the insights from the literature, interviews with cyclists and focus groups with senior citizens, the researcher and the focus group participants were able to co-design a cyclo-tourism app entitled Jizo. Findings indicate that certain gamification techniques and elements can trigger senior citizens' motivations towards cyclo-tourism, being essential integrative parts of an app in this context. The game elements that were highlighted were: social relationships, progression, challenges, competition, feedback and rewards. These were divided into pre-, in loco and post- cyclo-tourism experience. These data support the view on gamification capability to motivate sustainable cyclo-tourism.

Keywords: Senior Citizens, Gamification, Motivation, Cyclo-tourism, Co-design, Jizo

1.4.4

Gamification for Graphic Education: a case study on innovative methodology

Jackeline Farbiarz, Alexandre Farbiarz, Guilherme Xavier and Cynthia Dias

Abstract: This paper presents a case study on the *Commercium & Cognitionis* project, which aligns technology and playfulness, implementing the use of smartphones and gamification as pedagogical tools that value didactic content and interaction. Aiming at students of the Visual and Graphic Languages discipline of a Journalism course in Brazil, the proposal is aligned with the insertion of urban youth into a highly imaged and technological contemporary culture. The study reflects research which demonstrates journalism students' lack of interest in visual communication contents and the dynamics of a game that combines competition and collaboration in the search for knowledge to solve the proposed challenges. Adopting active pedagogical methods which exploit skills and abilities in the game allowed the combination of systemic and procedural evaluation in the discipline, as well as the evaluation of knowledge construction. To reach the play goal, it was necessary for the student-player to pursue the didactic objectives, as the evaluation of the experience indicates that dedication to the game positively influenced the academic dedication, also stimulating access and meaningful learning on the programmatic contents and guaranteeing autonomy and independence in the educational process.

Keywords: education, innovation, technology, gamification

1.5

Game Criticism

Game Criticism is a personalized game review score is in the spotlight with the paper 'Personalized Game Reviews' authored by Miguel Ribeiro and Carlos Martinho. Mythogames are introduced by António de la Maza with his paper entitled 'The symbolic labyrinth in the mythogame: the axes Minos-Daedalus and Theseus Minotaur in the contemporary video game.' A classification of hybrid games is offered by Ryan Javanshir, Beth Carrol and David Millard in 'Classifying Multiplayer Hybrid Games to Identify Diverse Player Participation.' Finally, Emmanoel Ferreira ends this section with socio-cultural and historical aspects of media archaeology in a game context.

1.5.1

Personalized Game Reviews

Miguel Ribeiro and Carlos Martinho

Abstract: One way of subjective evaluation of games is through game reviews. These are critical analyses, aiming to give information about the quality of the games. While the experience of playing a game is inherently personal and different for each player, current approaches to the evaluation of this experience do not take into account the individual characteristics of each player. We firmly believe game review scores should take into account the personality of the player. To verify this, we created a game review score system, using multiple machine learning algorithms, that computes multiple review scores for different personalities which allow us to provide a more holistic perspective of this value, based on multiple and distinct player profiles. Our results support that the approach is statistically and significantly better than using the weighted average score provided by metacritic.com, currently one of the most popular websites that aggregate video game reviews, among other media products.

Keywords: review system, player model, machine learning, digital game

1.5.2

The symbolic labyrinth in the mythogame: the axes Minos-Daedalus and Theseus- Minotaur in the contemporary video game

Antonio José Planeells de la Maza

Abstract: This research is based on the mythical stories that develop the concept of the labyrinth, both as a physical structure and as a symbolic and psychological space, in its application to contemporary video games. Through the stories of Daedalus, Minos, Theseus, Ariadne and the Minotaur we analyse, on the one hand, the physical use of the labyrinth as a game structure and, on the other hand, the symbolic design of the mythemes in the mythogame.

From the symbolic dimension we establish a double axis of analysis: the axis of the relationship between creation and power represented by Daedalus and Minos and, on the other hand, the relationship between the hero and the challenge exemplified in the case of Theseus and the Minotaur. Finally, we make a vindication of Ariadne's thread as a metaphor derived from the labyrinths without challenge and with a single path through the genre of walking simulators.

Keywords: : Video games, Labyrinth, Maze

1.5.3

Classifying Multiplayer Hybrid Games to Identify Diverse Player Participation

Ryan Javanshir, David Millard and Beth Carroll

Abstract: Hybrid games are types of games that use multiple media channels, technologies or domains to expand the magic circle of play. However, there is little research on the classification of such games, and how different types affect player participation. We use a model to formalize the various structures of hybrid games, construct a classification scheme and use this as a platform for discussing how different types of hybrid games affect player participation. This paper provides a methodology whereby hybrid games can be classified, potentially fostering ideas for diverse hybrid games to be made. These classifications also enable assumptions to be made about how player participation varies depending on the channel structure of a hybrid game.

Keywords: Hybrid Games, Game Design, Transmedia, Player Participation

1.5.4

E.T. Phone Home, or from pit to surface: intersections between archaeology* and media archaeology

Emmanoel Ferreira

Abstract: This paper demonstrates the possibilities of intersection between archaeology – as a discipline, as a field – and media archaeology, taking as a case study the excavation of the Atari cartridges held in Alamogordo, New Mexico, USA, on April 2014. It also indicates how the conjunction of these two archaeologies can provide new (and alternative) historical narratives to “facts” crystallized by time and often accepted as unquestionable truths, opening possibilities for new understandings about cultural, social, and economic aspects concerning certain media phenomena.

Keywords: archaeology, media, video games, Atari, E.T.

2.

Research Posters

This section brings results from completed and under development works by researchers from Portugal and other countries. The main themes addressed in these works are evaluation of educational games, heuristic evaluation for commercial games, gamification, teaching, health, aging and neuropsychology. The investigative approaches are the most diverse, such as case studies, empirical studies, virtual reality application prototypes and gamification. Lastly, there are works that investigate the audience engagement with indie multiplayer games.

2.1

Evaluation of Educational Games: A Research Plan Towards the Proposal of a Digital Application

Helena Reis and Ana Margarida Pisco Almeida

Abstract: The purpose of this paper is to present a research plan on the field of digital educational games evaluation. The study is intended to present a contribution to deepen knowledge on the key dimensions that should be considered in the design of a proposal for a digital application, which will allow the teacher to evaluate and select an educational game according to three indicators: motivation, user experience and learning. Moreover, it's also intended to understand how the proposal may contribute to change teachers' attitudes by motivating them for further use of game-based solutions in teaching. For this purpose, two cases will be used: the UNLOVE game and the SANDIEGO INC game. The upcoming study will be of exploratory nature, framed in the socio-critical paradigm, presenting itself as a mixed investigation in which qualitative and quantitative methods are combined and reconciled. Fifty-one 11th grade students in high school level of vocational education will participate in the research. For each game, a session will be held with the students. Then, a questionnaire for evaluation of gaming educational resources will be filled in. An interview will also be applied to each teacher of the class, which had a gaming session. In addition to this, as proposed by the Educational Design Research approach, discussion group dynamics will be created with a focus group of eight experts/teachers that may assist in the design of the digital application. The achieved design of research plan allowed a better understanding of the importance of increasing the adoption of this type of teaching strategy by the education professionals, enabling the teacher to use educational games more easily and confidently.

Keywords: games, evaluation, digital resources, user experience, motivation, learning

2.2

Gamification and MDA Framework conceptual model to promote motivation in the elderly

Anabela Pinho and Hugo Paredes

Abstract: Longevity with quality of life is a converging ideal with assumptions in health promotion. From this premise results the importance of a study where possible combinations are found using strategies and technological tools in order to build models that create motivation in people, especially in the elderly to perform healthy practices that allow them to well-being and active ageing. The creation of strategies that motivate the adoption and use of these technologies by the elderly becomes challenging.

In turn, technological development has given rise to new tools, and with them, new behaviors in people's lives. Games are a good example, enhancers of engagement, commitment and behavior change. The most recent phenomenon is gamification, which emerges as a catalyst for motivation.

The current research aims to propose a model to enhance the motivation in the elderly to perform certain tasks. It is a conceptual model built through the application of gamification based on the Mechanics, Dynamics, Aesthetics (MDA) framework. Its development resulted from a systematic work that focused on a review of what was done in terms of gamification application and how gamification strategies were used having as support the MDA framework.

This article presents the steps developed in the construction of the proposed model, from literature review, gamification application and MDA framework utilization.

Keywords: active-ageing, gamification, framework MDA, motivation

2.3

Representation and visibility of neurodivergent persons within fiction. A case study applied to fiction in

Esteban Canle, Beatriz Legerén-Lago and Enrique Costa-Montenegro

Abstract: From a neurotypical point of view, neurodivergence is perceived as something that doesn't matter, or that goes unnoticed; also, this perception may not always be a reliable representation of the characteristics of neurodivergent persons. In this sense, fiction can be an important way of giving visibility and representation to that which is understood as different; through fiction we can construct the reality of the world around us and, therefore, give voice and presence to that which doesn't fit within what is socially considered as 'normal'.

Because of this, the objectives of this research are, firstly, to raise awareness within the neurotypy of what it means to be different and, secondly, to provide guidance on how to design videogame narratives and characters that are representative of the reality of neurodivergent persons.

To achieve these objectives, a theoretical-practical approach will be used to study two questions. Firstly, the term neurodivergence will be reviewed, applying the use of this concept to the study of autism spectrum disorder (ASD). Secondly, two video games will be analysed to understand how their characters and storylines were designed, and to evaluate whether or not this population group has been represented within them.

Keywords: Videogames, Autism Spectrum Disorder, Neurodiversi, Narrative, Schizophrenia

2.4

Super Mario Odyssey – A heuristic evaluation

Josué Silvério

Abstract: Video game testing is a very important part of the development cycle. Heuristics are a way in which you can test your game. This article was made to document a heuristic evaluation on the Nintendo Switch game “Super Mario Odyssey”. The test was done with the help of 5 subjects using 10 heuristics to evaluate the tuto-rial and the initial map as a way to teach the controls and mechanics to new play-ers. The results show that while the game has a very good tutorial and starting level it still has some points where it can improve.

Keywords: heuristic evaluation, digital game, video game, usability

2.5

MusA:

A Virtual Museum with VR thematic exhibitions

Fernando Sousa, José Nunes, Carlos Santos, João Magalhães, Joaquim Moreira, Mário Vairinhos, and Daniela Cunha

Abstract: Some museums use new technologies to support and complement their physical exhibitions. In more sophisticated approaches, these technologies are the genesis of the exhibition in question, allowing developers to create immersive virtual environments that can be completely imagined or based on real references. The University of Aveiro has a unique and relevant collection, but there are no human resources, nor the physical space to display it in real exhibitions.

The MusA project was developed to bridge this issue by digitizing the collection and putting the previously stored artifacts in virtual environments thematically related to them.

A VR narrative with some gamification strategies was created to enrich the exhibitions' interaction while trying to attract a wider audience. This prototype implemented two exhibitions by theme called The History of Fado and The Beautiful Sight of Hélène de Beauvoir -where an aesthetic and architectural adequacy to the temporal space and to the real context of the artifacts was considered.

Keywords: Virtual Museum, Virtual Reality, Museography, Narrative

2.6

Creation of a Genre-Specific Heuristic Set for Walking Simulator Games

Adso Fernández-Baena and Olga Cid-Vega

Abstract: Video games heuristics have been applied in a general way without considering the great difference among genres, instead of adapting them with specific sets. The goal of this work is to create an heuristic set for walking simulators: adventure games focused on narrative and with minimal interaction. For that purpose, a selection of 10 games of the genre has been used, thereby 24 specific heuristics categorized in usability and gameplay were obtained. Finally, the set has been proven to be more effective in its use for heuristic evaluations for walking simulators genre against a set of general heuristics.

Keywords: video games, walking simulator, game user research, heuristics

2.7

Influenza:

A board game for social education

Filipe Luz, Eva Vital and Claudilene Perin

Abstract: As free activity, gaming provides a particular immersion of the player into the game space. On the other hand, traditional teaching oriented towards curricular goals, systematic evaluations support-ed by expository methodologies that foster passivity, are distant from the playful landscape games that are full of apparent agency and freedom to explore.

The Edutainment or Gamification concepts are present in the glossary of schools and universities, but large education institutions do not seem prepared to integrate game mechanics into learning models, probably due to the difficulty that they have in changing their operating structure and curricular units.

This statement is based on the frequent proposals for the development of education-al games and in large part on the solutions used in academia that could be represented as obsolete ladder games and illustrated quizzes.

In the wake of one of these academic requests in the context of a doctoral thesis in social education, a game has been developed to attract young adolescents to play and, simultaneous, gain knowledge about the risks of non-vaccination. This paper aims to demonstrate how a game created for this purpose, Influence (Eva Vital, 2019), can act as entertainment and use the game mechanics to disseminate the risks of epidemic dilemmas that communities face in a context of non-vaccination.

Keywords: educational game, game mechanics, social education, tabletop games, vaccination

2.8

Iterative public development of indie games on a digital distribution platform.

Raquel Echeandía and Sara Cortés

Abstract: The distribution of games presents more options than ever, where cross-platform accessibility means a change of philosophy with respect to current game modes. With the definitive implementation of the Internet for general use, digital purchases became popular, and in this way the concept of independent video games was consolidated. It is a reflection of the reality of an increasingly traditional digital ecosystem in the decentralization process. The objective of this article is to analyze from different perspectives the social phenomenon of Don't Starve Together, the independent game developed by Klei Entertainment and available on Steam, and investigate the factors that have favored the audience's participation before a market full of games . We use Big Data (Kitchin 2014) to identify correlations, behaviors and patterns in massive sources of audience data, and with Small Data (Pink, 2013) we deepen the causes, with more qualitative data of opinions of the potential audience. We combine it with a virtual ethnographic research method (Boellstorff et al., 2012) to conduct studies of communities and cultures created through social interaction in digital ecosystems. We will investigate the indie aesthetic as a differentiating factor and the active role of the audience in the edition of the game before and after the launch, thanks to the early access and the steam workshop mode.

Keywords: Indie Games, Development, Engagement, Audience, Aesthetic

3.

Video Game Demos

This section contains a number of innovative demos (8) within the field of video games. The covered video game genres reflect different approaches such as racing, platform, puzzle, educational, transmedia, location-based and shooter games.

Most of the demos are aimed at teaching, especially Math, but there's also demos about subjects of cultural heritage and History. Two of them are designed to support the teaching of a deaf audience.

Besides educational purposes, there are examples that focus on gamification or aesthetics and there's also a clear focus on supporting multiple users, in co-op, competitive and community-based approaches, which reflects the social nature of video games.

3.1

Ficha Tripla

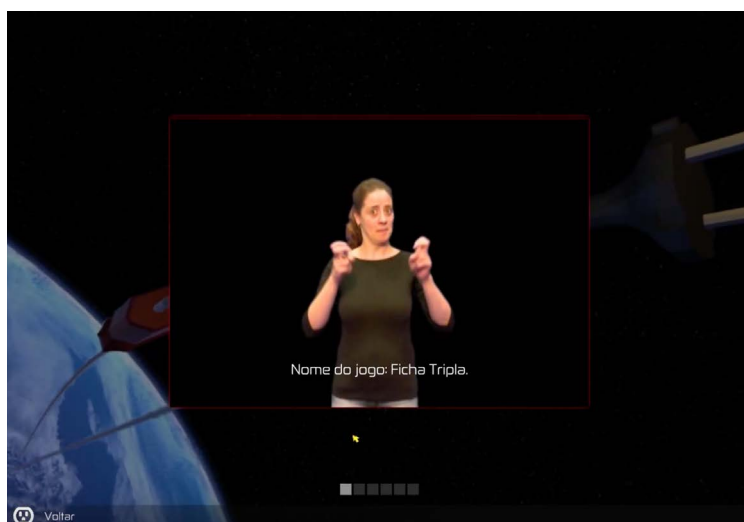
João Frade

Synopsis: Is intended for teaching mathematics to deaf students and hearing people, with a tutorial in Sign Language. It seeks to develop the speed of reasoning at the level of algebraic operations involving multiplication, addition and subtraction.

This is a variant of a typical racing game, where two electrical plugs (or one in single player mode) go through tunnels avoiding meteorites as obstacles and seeking portals with questions and answers. Each player chooses an electrical plug that will have to pass through the answers. It will gain speed if it hits the right option and will slow down on a wrong answer hit.

The videogame integrates a question editor that allows to change and create questions according to the pedagogical needs of the teacher or the interests of the player. Other subjects besides mathematics are already included.

Regarding the interfaces, it can be played on a keyboard or a controller that was designed by students using 3D printing and Arduino. It has the shape of a rounded rectangle and contains a joystick on the left side and two push buttons on the right.



3.2

Bernardino

Diogo Martins and Francisco Freixo

Synopsis: Bernardino is a third-person physics-based adventure game full of challenging obstacles and monsters.

Venture through its dangerous world to save your village's ancient wizard, you are the chosen one after all!



3.3

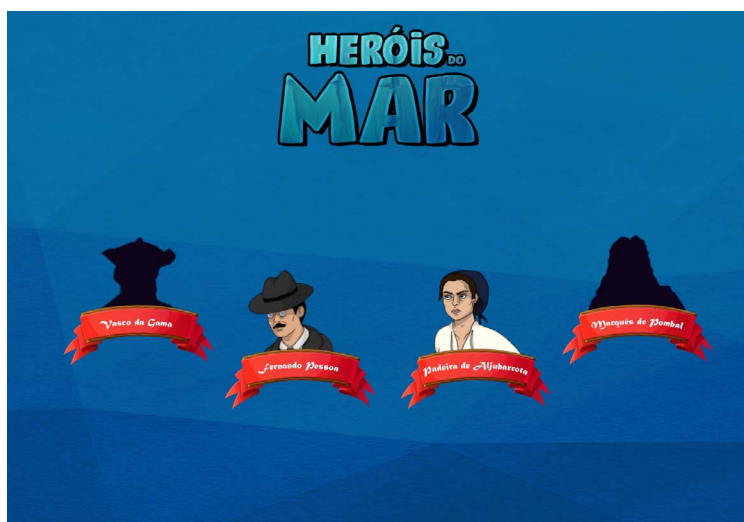
Heróis do Mar

Nuno Carriço and Rui Martins

Synopsis: Heróis do Mar is an action 3D multiplayer game arena brawler for 2-4 players, in which players fight against each other with Portuguese historical figures.

What makes this game unique is the signature moves of the Portuguese heroes that are all based on their history.

The players will need to skillfully use each character ability making sure to tactically manage their cooldowns in order to win.



3.4

Kiki and Bobo

Duarte Carneiro, Ivo Penedo and Vasco Borges

Synopsis: Kiki and Bobo is a Co-op 3D Platformer where you discover exciting rooms with cute visuals and a vibrant scenery where you help Kiki and Bobo being together for the rest of their lives by solving exhilarating puzzles to show their real affection for each other.

Kiki and Bobo is inspired by Captain Toad Treasure Tracker in terms of perspective and puzzle solving and Super Mario Odyssey (Luncheon Kingdom) in terms of aesthetics.

This game is for couch co-op enthusiasts, fans of puzzle platforming in a 3D environment and lovers of cute visuals and vibrant colors.



3.5

Neokai

André Santos, João Silva and Roberto Junior

Synopsis: Neokai is a teambased multiplayer top-down arena brawler, developed in Ba Videogames Studies context (university Lusófona). Players can pick a character from a diverse cast of characters and fight in 1v1, 2v2 or 3v3 action packed matches where they need to capture and hold onto credits.

Thematically Neokai focuses on the punk aspects of cyberpunk.

Neokai is set in a world, where people are ranked in a social hierarchy.

Exhiled citizens can fight in illegal arenas and bet their own social credits.

Easy to learn, hard to master!

Each champion has 1 weapon, 2 abilities and 1 passive. having a good team composition, along with good communication is essential.



3.6

ReMat

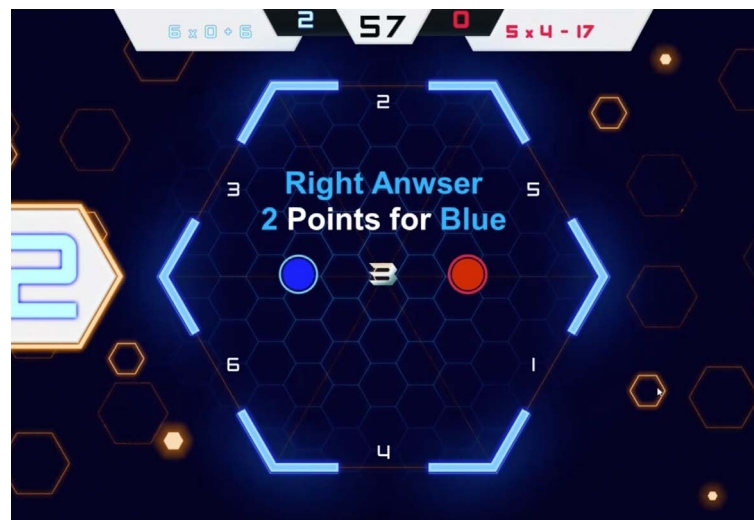
David Patrão, Gustavo Sobral and Miguel Gutierrez

Synopsis: ReMat is a educational mini-game for teaching mathematics to deaf students and hearing people, developed by 3 students of the bachelor degree on videogames of University Lusófona (Lisbon), in partnership with a school specialized in teaching the deaf.

It consists of a variant of a football game in which two players, represented by a blue circle and a red circle, are confronted with math questions while playing football.

The match takes place in a hexagonal arena with six goals, which correspond to six possible answers in rounds with a question for each player. To correctly answer the questions players will have to put the ball in the goal with the right answer, which is different for each of the players. Players can choose the duration of the game and the player with the most goals accumulated at the end of the game wins.

The Video Game can be played by keyboard or controller that was designed by students using 3D printing and Arduino. It has a circular shape in association with a ball, and contains a joystick on the right side and one push button on the left side.



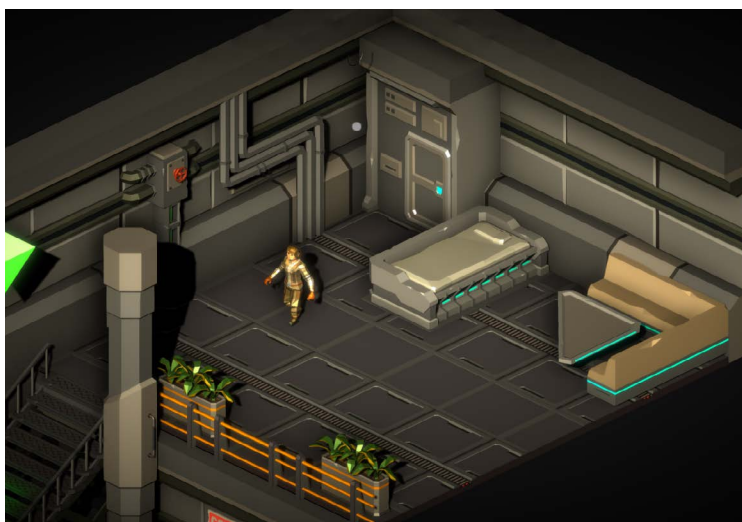
3.7

Matemática de outro mundo

Fernando Soares, Andreas Melo and João Frade

Synopsis: *Matemática de Outro Mundo* (Working Title) puts the player in the shoes of the Commander, a space explorer in charge of a distant planetary colony, to oversee its growth into prosperity. The commander arrives at the colony and finds it abandoned and in ruins. Now, armed only with their wits, the local resources and a very special virtual assistant called V.I.T.A.S., the Commander must rebuild this colony fighting off attacking space pirates that aim to destroy it.

The player will solve puzzles and challenges using their math skills and logic in order to gather resources to unlock and upgrade new puzzles. Each stage represents a different resource that can be used to ultimately rebuild the derelict colony, and eventually build the ships necessary to fight off the space pirates and restore order to the edge of the galaxy. The main objective of the game is to serve as a pedagogical tool for the learning of mathematics. Nevertheless, it should be a viable commercial game with high entertainment potential and replayability, meaning that math content is intrinsically integrated in playability, first and foremost.



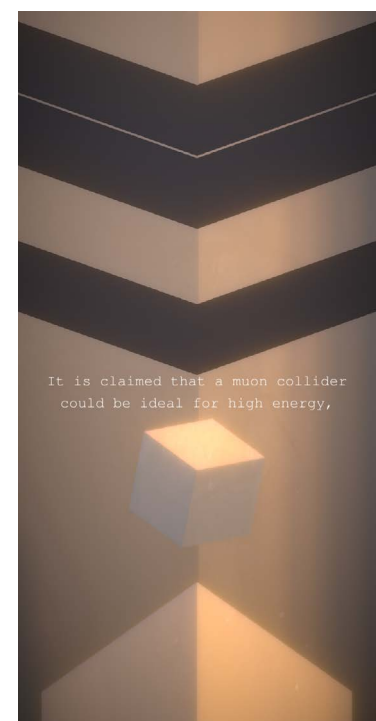
3.8

Synchrotron

Luís Fraga

Synopsis: A transmedia exploration of physical paradoxes.

Explore a description of space and time unlike that suggested by common sense. Particle travel distances are extended by the slowing of time and by the contraction of Earth's own length; 10-second music riffs become never-ending jam sessions.



3.9

Introducing Footour

Diogo Carvalho, João Sampaio and Sofia Ribeiro

Synopsis: Footour is a location-based game that allows you to get to know the city of Aveiro in a unique and incomparable way through interactions with historical characters.

