# Introduction

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Play constitutes one of our first deliberate activities in life, providing the first opportunity for interaction with objects, devices, and other children or grown-ups, months before walking, talking or advanced tactile abilities. Later on in life, play becomes the basis of forming small or larger groups, and identifying rules which need to be respected in order to function within those groups: players of a school basketball team have different roles and competencies, and they all have to work towards the common good of the team, while following the rules of the game, in order to succeed. In this framework, play, especially in social situations, becomes a powerful inducer of emotions, based on its outcome and the dynamics between team members and opponents. In the case of digital games, devices have now the ability to sense player emotion, through cameras, microphones, physiological sensors, and player behaviour within the game world, and utilise that information to adapt gameplay accordingly or generate content predicted to improve the player experience and make the game more engaging or interesting.

This book attempts to encompass the concepts that make up the big picture of emotion for and from digital gaming, starting from psychological concepts and approaches, such as modelling of emotions and player experience, to sensing and adapting to emotion, and discussing applications of emotion-aware gaming in selected concepts and robotics. As work on emotion in games is highly multidisciplinary by nature and important to several areas of research and development we carefully selected and invited scholars with pioneering work and recognised contributions in game studies, entertainment psychology, affective computing, game design, procedural content generation, interactive narrative, robotics, intelligent agents, natural interaction and interaction design. The result is a **holistic** perspective over the area of emotion in games as viewed by the variant research angles offered by the different research fields. Based on the received chapter contributions this book is divided in 3 main parts: *Theory*, *Emotion Modelling and Affect-Driven Adaptation* and *Applications*.

Bateman opens the first part of the book (**Theory**) by examining the question of why we like to play in "The Aesthetic Motives of Play". Kivikangas, in his chapter titled "Affect Channel Model of Evaluation in the context of digital

games" combines different emotion theories, attempting to explain different aspects of game experience. Finally, Calleja et al. discuss "Affective Involvement in Digital Games" through different dimensions of both involvement and games, aiming to introduce affect in their model and examine how different components of gameplay relate to each other and affect player involvement.

The second part of the book (**Emotion Modelling and Affect-Driven Adaptation**) concentrates on computational concepts related to sensing, emotion modelling and generating emotions and content for digital games. Kotsia et al. in "Multimodal sensing in affective gaming" discuss how different sensing modalities (facial expressions, body movement, physiological measurements or even wearables) can provide meaningful insights about the player's emotion to the game, based on player expressivity, while Schuller discusses how speech contributes to player-player and player-game interaction in "Emotion Modelling via Speech Content and Prosody – in Computer Games and Elsewhere". In the framework of Brain-Computer Interfaces and physiology, Fiałek and Liarokapis investigate the use of BCI devices in gaming and virtual reality in "Comparing two commercially available brain computer interfaces for serious games and virtual environments" and Yannakakis et al. argue about the importance of physiology for the investigation of player affect in "Psychophysiology in Games". From the synthesis and generation point of view, Ravenet et al. in "Emotion and Attitude Modelling for Non-player Characters" describe how modelling and generation of emotions and attitudes in Embodied Conversational Agents (ECA) can enhance the realism and interactivity of non-player characters. In a similar framework, Togelius and Yannakakis discuss game level design based on affect and other aspects of player experience in "Emotion-driven Level Generation", O'Neill and Riedl present Dramatis, a model of suspense used to generate stories that elicit emotions in "Emotion-Driven Narrative Generation", Burelli crosses the border of traditional cinematography and digital gaming in "Game Cinematography: from Camera Control to Player Emotions", and Garner describes how sound in games can be utilised to both infer and evoke emotion in his "Sound and Emotion in Video Games" chapter. This part of the book is concluded with the chapter of Broekens et al. "Emotional Appraisal Engines for Games"; the chapter discusses the rationale for specialized emotional appraisal engines for games which provide basic emotion modelling capabilities for the generation of emotions for non-player characters.

The third part of this book (**Applications**) discusses a number of applications that utilise game- and affect-related concepts. Bianchi-Berthouze and Isbister examine body movement as a means for expressing emotion in the context of digital games ("Emotion and Body-based Games: Overview and Opportunities"). Holmgård and Karstoft in their "Games for Treating and Diagnosing Post Traumatic Stress Disorder" chapter discuss the capacity of games for mental health and focus on the impact of emotion on games for post traumatic stress disorder. Khaled et al. present how emotions were used to model conflict, cooperation and competition in a serious game for children, in "Understanding and Designing for Conflict Learn-

ing Through Games". Finally, robotic applications of emotion and affect are discussed by R. Aylett in "Games robots play: once more, with feeling" from the point of view of robotic companions and digitised games, while Cheok et al. present the fascinating concept of "Lovotics: Love and Sex with Robots".

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