Preface

This book is about user interfaces to applications that can be considered as "playful." The interfaces to such applications should be "playful" as well. The application should be fun, and interacting with such an application should, of course, be fun as well. Maybe more. Why not expect that the interface is persuasive, engaging, challenging, and aims at helping to provide the user with fun, trying to keep the user motivated, not frustrated or bored, or, in terms of "flow theory," in a state where there is a balance between skills and challenges? Obviously, we can introduce playful interfaces to boring tasks and tasks that require efficiency in the first place. Also such tasks can profit from interfaces that introduce playful elements, for example, performance statistics and competition elements, or personalized and motivating conversational agents. But of course, we can expect that most useful applications of "playful interfaces" appear where users have to interact with computers, sensor-equipped environments, social robots, wearables, and mobile devices that are embedded in smart environments that support our general daily-life activities and that are not directly aimed at efficiency. Gamification of society aims at introducing playful elements in our digitally supported daily activities, whether it is about home activities, work activities, public space activities, or recreational activities. Playful interfaces, that is, interfaces that allow playful interactions with such activities, are then required.

Playful interfaces are designed to invite playful, social, and physical interaction. Users should feel challenged and persuaded to engage in the interaction with the particular application and the interaction should be fun. This does not necessarily mean that the application has been designed for providing fun only. Nothing wrong with that, but playful interfaces can also be interfaces to educational material introducing physics, mathematics, and informatics to a student. Or they can be interfaces to simulation environments that are meant to train professionals in decision-making situations or performing tasks in riskful situations. In addition to training and educational applications there can be aims such as playfully supporting rehabilitation activities or activities aimed at improving physical and mental health. Artists interested in digital art and entertainments have introduced—and will continue to do so—art installations with sensors and actuators that invoke playful user participation to experience their art.

Advances in interaction technology have allowed us to talk about ubiquitous and pervasive computing. That is, sensors and actuators embedded in environments, (mobile) objects, and wearables, have made it possible to extend the view of human–computer interaction where the user is attached to mouse, keyboard, and monitor with a graphical user interface to a reactive and proactive environment that surrounds a user and where the computing power is not necessarily addressed in an explicit way by the inhabitants of the environments. Such smart environments allow the sensing of their inhabitants, including the interpretation of their verbal and nonverbal behavior, their bodily behavior, and their physical activities in this sensor-equipped environment. And, of course, they allow the sensing of how inhabitants of these environments interact with each other. Examples of sensors are cameras, microphones, position and proximity sensors, acceleration meters, augmented reality glasses, augmented, and immersive virtual reality headsets, and physiological body sensors, including brain–computer interfaces for monitoring and stimulating brain activity. Smartness embedded in the environment makes it possible to offer playful interaction possibilities to inhabitants of these environments.

These developments allow users to interact with objects and devices that are part of their natural physical environment. Information presentation, information exchange, and information manipulation can be done in a context where the environment knows about the user and its preferences, and its moods and emotions. Digital multimedia can be employed to augment physical reality and what we see, hear, feel, and smell can be manipulated by artificially evoked events. These events can take place in physical, augmented, and virtual reality environments where users can interact with tangible or virtual objects, including social robots in a home environment, embodied agents in conversational environments, or avatars and semi-autonomous actors in video game environments. Clearly, these developments allow a transition from video game environments to game and entertainment applications that are part of a digitally augmented physical world. That is, videogames enter the real world.

In the chapters of this book we discuss playful interfaces. We discuss new interaction technologies and applications that require these new and playful interaction technologies. We survey the present state-of-the-art research and future developments in the area of playful user interfaces. Many chapters in this book discuss designs and applications of playful interfaces that will only become available in commercial applications 5 years or later from now. In this book, we see the introduction of many prototypes of potentially interesting human–computer interfaces and their connection with their applications. Persuasive, social, and tangible interfaces are among the topics discussed in the chapters of this book.

In the first chapter ("Playful Interfaces: Introduction and History") of this book, there is a short introduction to the history and the state-of-the-art research in playful interfaces. Introduction and survey are short. After that there are five parts with chapters that introduce state-of-the-art-research on Playful Interfaces.

These five parts are (1) Public and Mobile Entertainment, (2) Indoor and Outdoor Playgrounds, (3) Games for Change, Personalization, and Teaching, (4) Health and Sports, and (5) Learning by Creating. The chapters in these parts provide a state-of-the-art survey of the current research on playful interfaces and provide a look into the future of playful interfaces.

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