

# Workshop Introduction: Computer Entertainment in Cars and Transportation

David Wilfinger<sup>1</sup>, Alexander Meschtscherjakov<sup>1</sup>, Christiane Moser<sup>1</sup>,  
Manfred Tscheligi<sup>1</sup>, Petra Sunström<sup>2</sup>, Dalila Szostak<sup>3</sup>, Roderick McCall<sup>4</sup>

<sup>1</sup> University of Salzburg, <sup>2</sup> Mobile Life Center, <sup>3</sup> Intel, <sup>4</sup> University of Luxembourg  
{david.wilfinger, alexander.meschtscherjakov, christiane.moser2, manfred.tscheligi}@sbg.ac.at  
petra@sics.se; dalila.szostak@intel.com; roderick.mccall@uni.lu

**Abstract.** This workshop deals with the potential that entertainment systems and games hold for the transportation context. Travelling by car, bus, plane or by foot can be frustrating and full of negative experiences, but also holds great potential for innovative entertainment application. New off the shelf technology offers great potential beyond old-fashioned rear seat entertainment systems with the sole purpose of keeping kids quiet. The richness of contextual factors and social situations have so far not sufficiently been exploited, which is why this workshop aims at discussing potentials for gaming in transportation.

**Keywords:** games, transportation

## 1 Introduction

Since the early days of mankind, games were used to reduce stress, support amusement, strengthen social ties and simply to have a good time. All of this is often missing in cars and transportation although especially when we are on the move, playing a game might cheer us up or relive us from boredom.

Working towards gaming in transportation this workshop is a forum for researchers and practitioners interested in games & entertainment approaches for the transportation and automotive domain. We believe that this is an emerging field, since entertainment technology has the potential to not only entertain travellers but also to reduce frustration, aggression, and foster positive behavior in all travelling situations. Games or Gamification can also help shaping the traveller's behavior for the better by, for example, keeping them off from driving during rush hour or using less fossil energy getting from A to B. The potential for entertainment in transportation is also growing, as (semi) autonomous vehicles will, for example, free up time for drivers and make opportunities for interactive technology even larger. The potential for entertainment in public transportation is also great for it being a social place. Gaming can change the way we travel, make it more fun but also have a societal impact by directing travelers' behavior.

## 2 Motivation

Although the potential for games in transportation is obvious, there are challenges as well as opportunities that distinguish gaming in transportation from gaming in other contexts. Gaming in transportation cannot be like gaming in the living room, but it also should not be the same. Designing successful entertainment applications for transportation requires a solid body of research as well as creativity making gaming in the transportation context a fun experience.

The context of playing games in transportation is highly influential on the experience that the game elicits. When travelling between locations, the context the game is played in, changes. Some of these changes affect what can be called environmental context. Changes in light for example will occur, the landscape moves past the player and although often not moving the body itself, players move through an environment with different speeds [1].

Also to consider for games in transportation is the social context. Other travellers can be a source of annoyance when, for example, space is limited during rush hour. On the other hand, the presence of other players can allow flexible multiplayer games that are more entertaining than a single player game can be. But there are still issues to be solved, for example privacy concerns when playing games in public places with strangers where we cannot keep our identity hidden and simply log out as it is possible in online gaming.

Apart from that the space that the game is played in can create very distinct situations. Playing games in the car requires the usage of a very limited space, most of which is not reachable when children are seated in child seats. Sharing a space like the car cabin also holds potential for conflict, since not all passengers might be interested in listening to the same sound that the game for one player creates [5].

Also in matter of time, transportation is different from playing games in living rooms or other more traditional contexts. Travel duration is flexible and thus needs an adaption of the game. Thinking of multiplayer games in public transport, players need to have the opportunity to join an ongoing game but also to leave it at every moment when they have reached the stop to get of.

From a more technology driven perspective, the transportation context is rich of data starting, for example timetables that are public available in many countries through open data initiatives. Also cars offer a vast amount of sensor data that can also serve as input for games and related applications. Even when walking we create data that can be used for meaningful and entertaining games. The challenge is to use this data in games and therefore make them unique for the context they are played in. In a way, the transport modality can be seen as controller of future games. This inclusion of transportation data and the context has the potential to make games meaningful but needs to be explored further.

This non-exhaustive list of challenges gives a first impression on research questions and topics that entertainment researchers face in the transportation context. Solutions must be found on how to use these very special characteristics of the transportation context and make them a feature in entertainment applications. It is necessary to create a better understanding of what makes a good game for the transportation context and which strategies of game design can be applied for games

while travelling. Travelling on the daily commute, for example, is very repetitive and thus causes boredom [2]. This is an aspect that a game has to take into account so that a context dependent game, for example, does not get boring simply because the traveller passes by the same place every day.

While there are promising approaches for gaming in transportation such as exergames for playing in the tramway [4], more has to be done to use the potential for gaming when people are on the move.

### 3 Workshop Objectives

Therefore this workshop is a forum to discuss how to enrich technology in transportation through aspects of entertainment and gaming. The goals of the workshop are twofold.

First, we want to bring researchers with interests in this topic together and have them present their work in order to inspire others. This goes in line with our efforts to create a community of researchers who are interested in the emerging topic of entertainment technology while travelling. We are convinced that the large body of research that is done in both the gaming and the transportation fields can be brought together to some extent, informing the work of researchers in both fields.

Second, we believe that the potential for entertainment applications in transportation is far from being sufficiently exploited; new off the shelf technology offers great potential beyond old-fashioned rear seat entertainment systems with the sole purpose of keeping kids quiet. Creative ideas are needed and this workshop can build a base for future collaboration and sharing ideas will help create a vision and contribute to the formation of a community.

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