



## Improving Attractiveness of Public Transportation with Interactive Experiences

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# Improving Attractiveness of Public Transportation with Interactive Experiences

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## ABSTRACT

This workshop addresses new interactive experiences in public transportation. New interactive experiences can change the way people experience and perceive public transportation and hence improve its attractiveness. The main focus is on *new interactive experiences with travel services in public transportation*. We invite both practitioners and researchers to propose design concepts, design and evaluation methods, novel interactive technologies or future research issues for the HCI in public transportation. The topics may address services for individual transportation vehicle types (buses, electric buses, trains, trams), or for the whole public transportation chain. The workshop will form a research agenda for interactive experiences in public transportation.

## Author Keywords

Public transport; mobility as a service (MaaS); experience design; travel services; design approaches; participatory design; sustainable HCI; novel interfaces.

## ACM Classification Keywords

H.5.m. Information interfaces and presentation (e.g., HCI):

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## INTRODUCTION AND MOTIVATION

Public transportation is a unique representation of urban space where the individuals come together with diverse socio-economic backgrounds at regular frequencies for extended periods of time [3]. Thus the context of public transportation has broad potential for the application of digital services such as location-based services through the use of, for example, travelers' mobile devices [3]. ICT plays a central role in transportation. Today, public transport users as well as non-users have access to a number of ICT mediated information services including real-time information and information on how to travel from A to B. These travel services have been designed primarily to increase travelers' knowledge, reduce uncertainty, and increase the efficiency of the trip.

Studies have also shown that people spend their time at, for instance bus stops and onboard buses listening to music and using social media applications in addition to reading newspapers or books or simply relaxing [e.g. 2, 4] The study conducted by Carreira, et al. revealed the potential of supplementary services when adding value to the passengers' travelling experience [1]. People's traveling behavior is changing simultaneously with the mix of transport modes and services offered to them [7]. Transportation is no longer only moving from an origin to a destination but it is a way for the users to encounter different service channels; such as off-board services (services that are used outside of the vehicle), on-board entertainment or information before, during or after the bus trip [1]. There is potential for improving the traveling

experience by offering value through supplementary services. Enhancing the attractiveness of public transport can happen through experience-driven design [5]. Carreira et al. found out that “Passengers also looked for other services, usually based on new technologies that could enhance their experience during the overall trip” (ibid). In order to understand the demand in different travel settings, the service providers need to familiarize themselves with the travel experience and its forming factors [6].

In addition to the basic navigation and scheduling services, our aim is to charter a collection of potential travel services for the context of public transportation. By **travel services** we mean *digital services that can support or enrich public transportation as well as associated activities before and after the trip*. The perspective is on traveler (passenger) experience and how the attractiveness of public transportation can be improved by novel interactive experiences.

The **practical goal** of the workshop is to provide a forum where researchers, designers, and practitioners can explore the design space of public transportation, create new ideas as well as establish contacts with others working in the field. The **research goal** is to gather understanding of experience-related issues and to form a research agenda for interactive experiences in public transportation.

#### **THEMES**

The workshop will build around and is expecting contributions from the attendees related to the following themes:

**Enhancing the public transportation travel experiences.** In what way can new travel services enhance the overall experience of using public transportation, of using different public transportation modes? Utilizing hardware add-ons, extensions and customizations to create new experiences to public transport. Novel applications or interaction techniques for public transport.

**New services for future public transportation.** Future public transportation may be a matter of a widening the concept from public to collective transportation. What are the implications of such a development on the content and design of travel services?

**Increasing public transportation use.** In what way can new travel services motivate an increase in public transportation use? What are the challenges?

**Co-design in the context of public transportation.** How can travelers participate in the development of new travel services? What can we learn from travelers and how can this knowledge be integrated in the development and design of new travel services? What could be the role of e.g. crowd-sourcing?

We invite stories of successful and unsuccessful studies around these themes. Position papers without empirical

work addressing novel ideas or conceptual frameworks are also welcome.

The topics can include or combine issues such as:

- Interactive service design principles, e.g. gamification, sustainable HCI and persuasion;
- New interaction styles, e.g. based on public displays;
- Context-awareness and location-based services;
- Supporting social interaction in public transportation;
- Services that support the whole transportation chain
- New approaches to payments;
- Mobility as a Service (MaaS);
- Participatory design and user involvement methods tailored for public transportation

#### **Workshop Goals and Expected Outcomes**

The workshop will gather researchers and designers in the public transportation domain and in HCI to create concepts and interaction ideas for the new interactive experiences in different forms of public transportation.

The outcome will be a research agenda for interactive experiences in public transportation, as well as a set of concepts for the related interactive experiences.

#### **Workshop Activities**

We propose a one-day workshop on Monday, 24<sup>th</sup> of October, with presentation and discussion including some brainstorm in the morning and bodystorming and hands-on session in the afternoon, followed by a summary of a research agenda for the theme of the workshop.

*Morning session (9-11 am): Public Transportation as a Space for Design and Research*

We start the workshop by giving an overview of the experience design and research issues in public transportation. Participants get to know each other and their works through “Pecha Kucha” presentations.

*Mid-day session (11 am-2 pm): Scenario-Based Design*

Participants are split into groups (the number of teams is based on the number of the participants). Participant groups concretize their ideas through storyboards or simple mock-ups. At the end of the session, each group gives a presentation on their design ideas.

*Afternoon session (2-4 pm): Research agenda*

The workshop participants will build an affinity diagram of research topics and issues that have been identified before the workshop or during the day.

*Wrap up (4-5 pm)*

Summary and conclusion, with concrete action points of sharing the gathered material and disseminating it to the research community.

### Target Audience

We welcome HCI scholars and practitioners from multidisciplinary areas including: interaction designers, service designers and developers, and researchers of transportation systems. We are expecting up to twenty participants in the workshop.

### Submissions

Workshop candidates should send a position paper (3-4 pages, in ACM Sigchi extended Abstracts EA format) to [jarno.ojala@tut.fi](mailto:jarno.ojala@tut.fi). The position paper should describe the authors' interest in the theme of the workshop and present the contribution that the authors would like to bring into the workshop.

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### ORGANIZERS' BACKGROUND

**Kaisa Väänänen** is a full professor of user experience at Tampere University of Technology. Her research interests are in user experience of smart environments, including transportation and smart city. She has background in working in industry, including 10 years at Nokia, Inc.

**Jarno Ojala** is a doctoral student from Tampere University of Technology, with a background in interactive technology. His research interests are in content-mediated interaction, social user experience and user experience design.

**Elina Hilden** is a doctoral student and researcher at Tampere University of Technology with a background in industrial and strategic design. Her interests are in utilizing design thinking in participatory and co-design projects to design for enhanced systems and better user experiences.

**MariAnne Karlsson** is professor in Human Factors Engineering and head of Division Design & Human Factors at Chalmers University of Technology, Sweden. MariAnne's research develops knowledge on the multi-dimensional relationship between people and technical artifacts, including ICT in transportation systems.

**Pontus Wallgren** is a senior lecturer and researcher at Division Design & Human Factors at Chalmers University of Technology, Sweden. Pontus' research concerns methods for user requirements elicitation and communication.

**Markku Turunen** is a professor of interactive technology in University of Tampere. Markku's research develops novel concepts for pervasive system interaction. He has extensive experience in public transportation interaction.

## Call for participation (DRAFT)

Call for participation to the NordiCHI workshop on

### *Improving Attractiveness of Public Transportation with Interactive Experiences*

This workshop addresses new interactive experiences in public transportation. New interactive experiences can change the way people experience and perceive public transportation and hence improve its attractiveness. The main focus is on *new interactive experiences with travel services in public transportation*. We invite both practitioners and researchers to propose design concepts, design and evaluation methods, novel interactive technologies or future research issues for the HCI in public transportation. The topics may address services for individual transportation vehicle types (buses, electric buses, trains, trams), or for the whole public transportation chain.

The workshop will consist of interactive, hands-on sessions for exploring the design space for the interactive experiences. The workshop will also form a research agenda for interactive experiences in public transportation.

#### *Themes of the workshop:*

Enhancing the public transportation travel experiences. In what way can new travel services enhance the overall experience of using public transportation, of using different public transportation modes? Utilizing hardware add-ons, extensions and customizations to create new experiences to public transport. Novel applications or interaction techniques for public transport.

New services for future public transportation. Future public transportation may be a matter of a widening the concept from public to collective transportation. What are the implications of such a development on the content and design of travel services?

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#### *Submissions*

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#### *Important dates:*

*August 25:* Deadline for position papers

*September 3:* Notification to the workshop participants

*16 September:* Early registration deadline

*24 October:* Workshop day in Gothenburg

#### *Looking forward to your submissions!*

Kaisa Väänänen, Jarno Ojala, Elina Hilden, MariAnne Karlsson, Pontus Wallgren and Markku Turunen

## Recruitment strategy

- Immediately after the acceptance of our workshop proposal we will set up a web site for the workshop; we will pay attention also to the visual design of the web site
- We will do 3-4 rounds of advertising between May 20 and August 20
  - We will use our extensive collaboration networks to advertise the workshop, also through facebook and Twitter
  - We will send the CfP to the mailing list of NordiCHI, BCS, ACM announcements, and transportation-related lists
- We will invite individuals who we know to work in the themes of the workshop to submit position papers; this will include both academic and industrial people