ICT&S Center
UNIVERSITÄT SALZBURG
Christian Doppler Labor
Contextual Interfaces

AutomotiveUI 2011
3rd International Conference on Automotive User Interfaces and Interactive Vehicular Applications
November 30th – December 2nd 2011, Salzburg, Austria

Conference Program

Welcome to AutomotiveUI 2011, in the world-famous city of Salzburg in Austria, where history and culture meet modern science and research.

A conference like AutomotiveUI is a team effort, and we would like to thank all contributors of the conference. Especially we would like to express our gratitude to the University of Salzburg for enabling this conference, as well as the ICT&S Center and the Christian Doppler Laboratory "Contextual Interfaces" for their generous support. We extend our gratitude to the people who devoted time before and during the conference and to our cooperation partners for making this conference possible.

Manfred Tscheligi
Conference Chair

ICT&S Center

UNIVERSITY of SALZBURG

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AutomotiveUI 2011
3rd International Conference on Automotive User Interfaces and
Interactive Vehicular Applications
November 29th – December 2nd 2011, Salzburg, Austria

General Information

On-Site Registration / Information Desk

Wednesday, Nov. 30th: 08:00 – 18:00, **ICT&S Center**
Thursday, Dec. 1st: 08:00 – 19:00, **Edmundsburg**
Friday, Dec. 2nd: 08:00 – 18:00, **Edmundsburg**

Wireless LAN

Wireless Internet is available at all conference locations.
SSID: Plus_Event
username: aui2011
password: 2011aui

AUI 2.0

Twitter: #aui2011
Flickr: aui2011

Further Questions?

For any question do not hesitate to address the local organisation team
or call +43.664.8525306.

Overview

Wednesday, November 30th 2011

09:00 – 13:00   Workshop 1 . . . . .ICT&S Center, Meeting Room
09:00 – 17:00   Workshop 2 . . . . **Faculty of Law, HS 214**
09:00 – 17:00   Workshop 3 . . . . **Faculty of Law, HS 215**
09:00 – 17:00   Workshop 4 . . . . **Faculty of Law, HS 212**

Thursday, December 1st 2011

09:00 – 09:30   Welcome + Intro . . . . .Europasaal
09:30 – 10:30   Keynote . . . . .Europasaal
10:30 – 11:00   Coffee Break
11:00 – 12:00   Session 1: Messaging in Motion .Europasaal
12:00 – 13:00   Lunch Break
13:00 – 14:30   Session 2: Modes of Interaction .Europasaal
14:30 – 15:00   Coffee Break
15:00 – 16:30   Session 3: Modeling & Adapting .Europasaal
16:30 – 17:00   Poster & Demo Madness . . . . .Europasaal
17:00 – 18:30   Poster & Demo Session . . . . .Konferenzraum
19:00   Walk to Conference Dinner . . . .**Meeting Point Edmundsburg**
20:00   Conference Dinner . . . . **Salzburg Fortress**

Friday, December 2nd 2011

09:00 – 10:45   Session 4: Studies Effects in the Car . . . . .Europasaal
10:45 – 11:15   Coffee Break
11:15 – 12:30   Session 5: Industrial Showcase . . . . .Europasaal
12:30 – 13:30   Lunch Break
13:30 – 14:45   Session 6: Studying Car and Driver . . . . .Europasaal
14:45 – 15:30   Coffee Break
15:30 – 16:30   Session 7: Putting the E in the Car . . . . .Europasaal
16:30 – 17:00   Closing . . . . .Europasaal

Workshops

WS1 Subliminal Perception in Cars

Andreas Riener; Institute for Pervasive Computing, Johannes Kepler University Linz
Manfred Tscheligi; ICT&S Center, University of Salzburg
Myounghoon Jeon; Sonification Lab, Georgia Institute of Technology
Joseph Fellner; AUDIO MOBIL Elektronik GmbH
Wed 30.11. , 09:00 - 13:00, **ICT&S Center, Meeting Room**

WS2 Cognitive Load and In-Vehicle Human-Machine Interaction

Andrew L. Kun; University of New Hampshire
Peter A. Heeman; Oregon Health & Science University
Tim Paek; Microsoft Research
W. Thomas Miller, III; University of New Hampshire
Paul A. Green; Transportation Research Institute, University of Michigan
Ivan Tashev; Microsoft Research
Peter Froehlich; Telecommunications Research Center (FTW)
Bryan Reimer; AgeLab, MIT
Shamsi Iqbal; Microsoft Research
Dagmar Kern; Bertrandt Ingenieurbüro GmbH
Wed 30.11. , 09:00 - 17:00, **Faculty of Law, HS 214**

WS3 AutoNUI: Automotive Natural User Interfaces

Bastian Pfleging; VIS, University of Stuttgart
Tanja Döring; Paluno, University of Duisburg-Essen
Martin Knobel; University of Munich
Albrecht Schmidt; VIS, University of Stuttgart
Wed 30.11. , 09:00 - 17:00, **Faculty of Law, HS 215**

WS4 Integrating Mobile Devices into the Car Ecosystem – Tablets and Smartphones as vital part of the Car

Steffen Hess; Fraunhofer IESE
Alexander Meschtscherjakov; ICT&S Center, University of Salzburg
Torsten Ronneberger; AUDI AG
Marcus Trapp; Fraunhofer IESE
Wed 30.11. , 09:00 - 17:00, **Faculty of Law, HS 212**

Thursday, December 1st 2011

Welcome and Intro
Europasaal

Manfred Tscheligi, Conference Chair
Matthias Kranz, Papers Co-Chair
Garrett Weinberg, Papers Co-Chair

Opening Keynote
Bryan Reimer, MIT AgeLab
Europasaal

Is Automotive Technology Leaving the Driver Behind? Rethinking How We Engineer Interfaces to Accommodate The Capabilities Of The Driver.

Vehicle interfaces evolved slowly over most of the last century. In contrast, recent innovations in display technology in combination with advances in sensing systems and computational capabilities have led to a rapid evolution of the vehicle interface. In the late 20th century, automotive interfaces primarily relied on a set of basic controls. Over the past 10 to 15 years interfaces have transformed into multi-functioned control stations with complex menu systems and multiple methods of accomplishing various activities. Embedded telematics systems, in combination with the increasing presence of nomadic devices, draw upon the driver's limited attention resources. In addition, semi-autonomous control systems increasingly offer to assume shared control of the vehicle and advanced safety systems warn drivers when they appear to be operating outside of acceptable control limits. While these systems offer the promises of improved connectivity, increased comfort and enhanced safety, complex and multiple system interfaces sometimes place increased demand on the driver.

Session 1: Messaging in Motion
Europasaal

Dictating and Editing Short Texts while Driving: Distraction and Task Completion
Jan Curin, Martin Labsky, Tomas Macek, Jan Kleindienst, Lars Koenig, Hoi Young, Ann Thyme-Gobbel, Holger Quast

Effects of Speech-based vs Handheld E-mailing and Texting on Driving Performance and Experience
Jacques Terken, Henkjan Visser, Andrew Tokmakoff

Content Matters: Towards Handling E-Mail while Driving Safely
Sergej Truschin, Tobias Schlachtbauer, Andreas Zauner

13:00 – 14:30

Session 2: Modes of Interaction
Europasaal

Generating route instructions with varying levels of detail
Jürgen Ziegler, Tim Hussein, Daniel Münter, Jens Hoffmann, Timm Linder

Evaluating the Usability of a Head-Up Display for Selection from Choice Lists in Cars
Garrett Weinberg, Zeljko Medenica Bret Harsham

A Study on User Acceptance of Proactive In-Car Recommender Systems
Roland Bader, Oliver Siegmund, Wolfgang Woerndl

Individual Differences in Preferred Steering Effort for Steer-by-Wire Systems
Swethan Anand, Jacques Terken, Jeroen Hogema

Statistical Effects of Selected Noise Characteristics on Speaker Recognition in Automotive Environments – A First ANOVA-Based Investigation
Sven Tuchscheerer, Christian Krätzer, Tobias C. Hoppe, Jana Dittmann

15:00 – 16:30

Session 3: Modeling & Adapting
Europasaal

Support for modeling interaction with in-vehicle interfaces
Stefan Schneegaß, Bastian Pfleging, Dagmar Kern, Albrecht Schmidt

The Automotive Ontology: Managing Knowledge Inside the Vehicle and Sharing it Between Cars
Michael Feld, Christian Müller

The Impact of an Adaptive User Interface on Reducing Driver Distraction
Patrick Tchankue, Janet L. Wesson, Dieter Vogts

A Dynamic Content Summarization System for Opportunistic Driver Infotainment
Barabra Rosario, Kent Lyons, Jennifer Healey

Human Modeling in a driver analyzing context: challenge and benefit
Tobias Islinger, Thorsten Koehler, Christian Wolff

16:30 – 17:00

Poster & Demo Madness
Europasaal

17:00 – 18:30

Poster & Demo Session
Konferenzraum

20:00

Conference Dinner
Salzburg Fortress
Meeting Point: 19:00 Edmundsburg

The social event of AUI 2011 will take place at „Hohensalzburg Fortress". The fortress was built in 1077 and is the largest, fully-preserved fortress in central Europe. Today the fortress is open to the public all year round. Since 1892 the fortress can easily be reached by funicular railway departing from the Festungsgasse.
We will leave **Edmundsburg at 19:00,** walk towards the railway station (duration: 15 min), and then use the railway (5 min) to reach the fortress. Remembering historic times we will enjoy a dinner and a gorgeous view over the city.

Friday, December 2nd 2011

Session 4: Studies Effects in the Car
Europasaal

Capture the Car! Qualitative In-situ Methods to Grasp the Automotive Context
Alexander Meschtscherjakov, David Wilfinger, Nicole Gridling, Katja Neureiter, Manfred Tscheligi

User interface transfer for driver information systems: a survey and an improved approach
Fabian Hüger

Investigating the Effects of an Advance Warning In-Vehicle System on Behavior and Attention in Controlled Driving
Lars Holm Christiansen, Nikolaj Yde Frederiksen, Alex Ranch, Mikale B. Skov

Central Executive Functions Likely Mediate the Impact of Device Operation When Driving
Sachi Mizobuchi, Mark Chignell, Junko Suzuki, Ko Koga, Kazunari Nawa

An angry driver is not the same as a fearful driver: Effects of specific negative emotions on risk perception, driving performance, and workload
Myounghoon Jeon, Jung-Bim Yim, Bruce Walker

Session 5: Industrial Showcase
Europasaal

Dialogs Are Dead, Long Live Dialogs: Building a Multimodal Automotive Application for Both Novices and Experts
Garrett Weinberg, Nuance Communications, Inc.

Skinning as a method for differentiating in-car infotainment systems
Simon Gerlach, Volkswagen AG

Using Controller Widgets in 3D-GUI development with end-to-end toolchain support
Simon Gerlach, Volkswagen AG and Stefan Schraml, Fujitsu Semiconductor Embedded Sol. Austria GmbH

13:30 – 14:45

Session 6: Studying Car and Driver
Europasaal

Investigating Safety Services on the Motorway: the Role of Realistic Visualization
Peter Froehlich, Matthias Baldauf, Dietmer Schabus, Stefan Suette, Marion Hagen, Andrew Kun

Determining Human-Centered Parameters of Ergonomic Micro-Gesture Interaction for
Drivers Using the Theatre Approach
Angela Mahr, Christoph Endres, Tanja Schneeberger, Christian Müller, Germany)

Natural, Intuitive Finger-based Input as a Means of In-Vehicle Information System Operation?
Andreas Riener, Philipp Wintersberger

A Cooperative In-Car Game for Heterogeneous Players
Nora Broy, Sebastian Goebl, Matheus Hauder, Tobias Kothmayr, Michael Kugler, Florian Reinhart, Martin Salfer, Kevin Schlieper, Elisabeth Andre

15:30 – 16:30

Session 7: Putting the E in the Car: Eco and Electric
Europasaal

Driver Interfaces for Electric Vehicles
Helena Strömberg, Pontus Andersson, Susanne Almgreen, Johan Ericsson, MariAnne Karlsson, Arne Nåbo

Eco-driving Incentives in the North American Market
Anna Korina Loumidi, Steffi Mittag, William Brian Lathrop, Frank Althoff

Slow down, you move too fast: Using animation to promote eco-driving
Noam Tractinsky, Ohad Inbar, Omer Tsimhoni, Thomas Seder

16:30 – 17:00

Closing & Future
Europasaal

*Manfred Tscheligi
Conference Chair*

Posters

P1 The use of in vehicle data recorders and self-reported data for evaluating driving behavior of young drivers
Gila Albert, Tsippy Lotan, Tomer Toledo,
Einat Grimberg, Mariano Lasebnik

P2 Information Extraction from the World Wide Web Using a Speech Interface
Hansjörg Hofmann, Ute Ehrlich, Andreas Eberhardt

P3 IVAT (In-Vehicle Assistive Technology): Multimodal Design Issues for TBI Drivers
Julia DeBlasio Olsheski, Bruce N. Walker

P4 ENGIN (Exploring Next Generation IN-vehicle INterfaces): Drawing a New Conceptual Framework through Iterative Participatory Processes
Mounghoon Jeon, Jonathan Schuett, Jung-Bin
Yim, Parameshwaran Raman, Bruce Walker

P5 The HMISL language for modeling HMI product lines
Simon Gerlach

P6 Effect of Spatial Haptic Cues on Visual Attention in Driving
Jinsil Hyun, Jungsik Hwang, Jeha Ryu, Kwangsu Cho

P7 Investigating the Usage of Multifunctional Rotary Knobs in the Center Stack with a Contextual Inquiry
Katja Neureiter, Alexander Meschtscherjakov,
David Wilfinger, Manfred Tscheligi

P8 Using the Fast Fourier Transformation for analyzing the steering wheel angle in distracted driving situations
Tobias Islinger, Thorsten Köhler, Bernd Ludwig

P9 Gas Station Creative Probing: The Front Seat Passenger
Sebastian Osswald, Manfred Tscheligi

P10 A New Icon Selection Test for the Automotive Domain Based on Relevant ISO Usability Criteria
Verena Johann, Angela Mahr

P11 The Process of Creating an IVAT Plug-in: Mirror Checking
Thomas Gable, Richard Swette, Alan Tipert,
Bruce Walker, Sundararajan Sarangan

P12 Personas for On-Board Diagnostics - User types of drivers dealing with malfunction in e-cars
Sascha Falke, Heidi Krömker

P13 On detecting distracted driving using readily-available sensors
J. Dan Morrow, Kerstan Cole, James Davis

P14 Intuitive Hand Gestures Controls Future Vehicular UI's
Andreas Riener, Michael Rossbory

P15 3D Theremin: A Novel Approach for Convenient "Point and Click"-Interactions in Vehicles
Andreas Riener, Philipp Wintersberger

P16 Open Car User Experience Lab: A Practical Approach to Evaluating Car HMIs Holistically
David Wilfinger, Martin Murer, Manfred Tscheligi

P17 Situation-adaptive driver assistance systems for safe lane change via inferring driver intent
Huiping Zhou, Makoto Itoh, Toshiyuki Inagaki

P18 Determination of Mobility Context using Low-Level Data
Daniel Braun, Christoph Endres, Christian Müller

P19 Addressing Road Rage: The Effect of Social Awareness in Every Day Traffic Situations -- A User Study
Sandro Castronovo, Monika Mitrevska, Christian Müller

P20 New Apps; New Challenges: Quality Matters in Automotive HMI Development
Mark Poguntke, Daniel Mauser

P21 The Ethnographic (U)Turn: Local Experiences of Automobility
Alex Zafiroglu, Tim Plowman, Jennifer Healey, Genevieve Bell, Philip Corriveau, David Graumann

P22 (C)archeology : Car Turns Outs & Automobility
Alex Zafiroglu, Genevieve Bell, Jennifer Healey

P23 An Approach to User-Focused Development of High-Value Human-Machine Interface Concepts
Matthew J. Pitts, Tom Wellings, Alex Attridge, Mark A. Williams

Demos

D1 The ROADSAFE Toolkit: Rapid Prototyping for Road-Testing Novel Automotive User Interfaces
Matthias Baldauf, Dietmar Schabus, Matthias Fuchs, Peter Fröhlich, Stefan Suette

D2 A Multimodal Interaction Style Combining Speech and Touch Interaction in Automotive Environments
Bastian Pfleging, Michael Kienast, Albrecht Schmidt

Location Overview

① **Conference Headquarters**
ICT&S Center
▶ Sigmund-Haffner-Gasse 18

② **Conference Venue**
Edmundsburg
▶ Toscaninihof Square

③ **Workshops**
Faculty of Law
▶ Sigmund-Haffner-Gasse

④ **Conference Dinner**
Railway to Fortress
Festungsgasse 4