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

AutomotiveUI 2011
ICT&S Center
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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
map on p. 12

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
**WS1 Subliminal Perception in Cars**  
Andreas Rienner; 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  
**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  
**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  
**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  

**WS1** Wed 30.11., 09:00 - 13:00, ICT&S Center, Meeting Room  
**WS2** Wed 30.11., 09:00 - 17:00, Faculty of Law, HS 214  
**WS3** Wed 30.11., 09:00 - 17:00, Faculty of Law, HS 215  
**WS4** 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*

09:30 – 10:30

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.

11:00 – 12:00

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 Tuchscheer, Christian Krätzer, Tobias C. Hoppe, Jana Dittmann*

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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*

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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

09:00 – 10:45

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

11:15 – 12:30

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
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 Goebi, Matheus Hauder, Tobias Kothmayr, Michael Kugler, Florian Reinhart, Martin Salfer, Kevin Schleper, Elisabeth Andre

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 Tsimhon, Thomas Seder

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 HMI's 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 Pfl eging, Michael Kienast, Albrecht Schmidt
Location Overview

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

2. Conference Venue
   Edmundsburg
   Toscaninhof Square

3. Workshops
   Faculty of Law
   Sigmund-Haffner-Gasse

4. Conference Dinner
   Railway to Fortress
   Festungsgasse 4

pedestrian tunnel to elevator