AutomotiveUI2012

4th International Conference on Automotive User Interfaces and Interactive Vehicular Applications

October 17th – 19th , 2012, Portsmouth, New Hampshire, USA

AUI
AutomotiveUI 2012
PORTSMOUTH NH

Conference Program

General Information

Registration & Information Desk
Wednesday, Thursday, Friday,
October 17th – 19th 2012
08.00 – 17.00
Sheraton Harborside Hotel
Portsmouth NH

Social Media
Twitter: #aui2012
Flickr: aui2012

Organizer
Electrical and Computer Engineering Dept,
University of New Hampshire,
Kingsbury Hall,
Durham NH, 03824, USA

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tel: +1 (603) 866-9120

WiFi

Sheraton Hotel
SSID: Sheraton Portsmouth
Password: 0404

Portsmouth Harbor Events
SSID: Bluestreak
Username: guest
Password: portwalk

Welcome to AutoUI 2012

in Portsmouth, New Hampshire. The program before you is our plan for, what we hope will be, three days of intellectually stimulating meetings and discussions. The conference is hosted by the Department of Electrical and Computer Engineering at the University of New Hampshire. We would like to thank our sponsors for their generous support of the conference. We would also like to recognize all of our colleagues who devoted time to organizing this event, both before and during the conference.

Andrew L. Kun
Conference Chair

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Overview

Wednesday, October 17th, 2012 – Workshops

09.00 - 12.00	Tutorials | Natural UI | Cognitive Load | Electric Car | Social Car (starts at 08.30)
12.00 - 14.00	Lunch
14.00 - 17.00	Tutorials | Natural UI | Cognitive Load | Connected Vehicles | Routine Drives
17:30 - 20:00	UNH Driving Simulator Lab Visit

Thursday, October 18th, 2012 – Main Conference Day 1

09.00 - 09.30	Welcome + Intro
09.30 - 10.30	Keynote - Paul Green: Using Standards to Improve the Replicability and Applicability of Driver Interface Research
10.30 - 11.00	Coffee Break
11.00 - 12.00	Session 1: Driver Distraction
12.00 - 13.30	Lunch
13.30 - 14.30	Session 2: Models
14.30 - 16.00	Poster Session 1 (Full and Short Papers with One Minute Madness, coffee)
16.00 - 17.00	Session 3: Visual / Audio
18.00 - 21.00	Reception (sponsored by Toyota CSRC)

Friday, October 19th, 2012 – Main Conference Day 2

08.30 - 09.30	Session 4: Driver-Vehicle Interface
09:30 - 10.30	Session 5: Navigation
10.30 - 11.00	Coffee Break
11.00 - 12.00	Session 6: Multimodal Interaction
12.00 - 13.30	Lunch | Women's Luncheon
13.30 – 14.00	Industrial Showcase
14.30 - 15.30	Poster Session 2 (Work in Progress and Demos with One Minute Madness, coffee)
15.30 - 16.30	Session 7: Workload and Demand
16.30 - 17.00	Closing Remarks

Wednesday October 17th 2012 Workshops – – – – – –

Tutorials

09.00 - 17.00 Portsmouth Harbor Events, Room 1

09.00 - 09.45 **T0: Introduction to Automotive UIs**
Albrecht Schmidt, University of Stuttgart

09.45 - 10.45 **T1: In-vehicle Speech Interaction**
Garrett Weinberg, Nuance

10.45 - 11.15 Coffee Break

11.15 - 12.15 **T2: Driver Distraction**
Bryan Reimer, MIT AgeLab

12.15 - 13.30 Lunch Break

13.30 - 14.30 **T3: In-vehicle UI and Standards**
Paul Green, UMTRI

14.30 - 15.30 **T4: Location in the Automotive Context**
Adam Duran, National Renewable Energy Laboratory

15.30 - 16.00 Coffee Break

16.00 - 17.00 **T5: UX Design for Vehicles**
Manfred Tscheligi, Salzburg University

W1: AutoNUI 2012: The Second Workshop on Automotive Natural User Interfaces

09.00 – 17.00, Portsmouth Harbor Events, Room 2
Bastian Pfleging - University of Stuttgart
Tanja Döring - University of Bremen
Ignacio Alvarez - Clemson University
Matthias Kranz - Luleå University of Technology
Garrett Weinberg - Nuance Communications
Jennifer Healey – Intel Corporation

W2: CLW 2012: The Second Workshop on Cognitive Load and In-vehicle Human-Machine Interaction

09.00 – 17.00, Portsmouth Harbor Events, Room 3
Andrew L. Kun - University of New Hampshire
Bryan Reimer - AgeLab, MIT
Peter Froehlich - Telecommunications Research Center (FTW)
Peter A. Heeman - Oregon Health & Science University
Tim Paek -Microsoft Research
W. Thomas Miller, III - University of New Hampshire
Paul A. Green - UMTRI, University of Michigan
Ivan Tashev - Microsoft Research
Shamsi Iqbal - Microsoft Research
Dagmar Kern - Bertrandt Ingenieurbüro GmbH

Wednesday October 17th 2012 Workshops ‒ ‒ ‒ ‒ ‒

W3: Electric Vehicle Information Systems - Challenges and Chances of E-Mobility

09.00 - 12.00, Sheraton Hotel, Woodbury Room

Sebastian Osswald - University of Salzburg
Sebastian Loehmann - University of Munich
Daniel Gleyzes - TUM CREATE
Klaus Bengler - Technische Universität München
Andreas Butz - University of Munich
Manfred Tscheligi - University of Salzburg

W4: The Social Car (Socially-Inspired C2X Interaction)

08.30 - 12.00, Sheraton Hotel, Warner Room

Andreas Riener - University of Linz
Myounghoon Jeon - Michigan Tech
Andrea Gaggioli - Universita Cattolica del Sacro Cuore
Anind K. Dey - Carnegie Mellon University

W5: Human Factors for Connected Vehicles: Planned Research and Guideline Development Activities

14.00 - 17.00, Sheraton Hotel, Woodbury Room

John L. Campbell - Battelle
Christian M. Richard - Battelle
Monica G. Lichty - Battelle
James W. Jenness - Westat
Neil D. Lerner - Westat
Zachary R. Doerzaph - VTTI
Christian Jerome – NHTSA

W6: We Are Not There Yet: Enhancing the "Routine Drives" Experience

14.00 - 17.00, Sheraton Hotel, Warner Room

Carlos Montesinos - Intel Corporation
Dalila Szostak - Intel Corporation

Thursday October 18th 2012

09:00 - 09:30 Welcome and Intro
Grand Ballroom, Sheraton Hotel

Andrew Kun, Conference Chair
Linda Boyle, Papers Co-Chair
Bryan Reimer, Papers Co-Chair
Andreas Riener, Papers Co-Chair

09.30 - 10.30 Keynote: Paul Green
Grand Ballroom, Sheraton Hotel

Using Standards to Improve the Replicability and Applicability of Driver Interface Research

10.30 - 11.00 Coffee Break
Ballroom Lobby, Sheraton Hotel

11.00 - 12.00 Session 1: Driver Distraction
Grand Ballroom, Sheraton Hotel

An Exploratory Study on the Impact of Typeface Design in a Text Rich User Interface on Off-Road Glance Behavior
Bryan Reimer, Bruce Mehler, Ying Wang, Alea Mehler, Hale McAnulty, Erin McKissick, Joseph F. Coughlin, Steve Matteson, Vladimir Levantovsky, David Gould, Nadine Chahine, Geoff Greve

Evaluating the Distraction Potential of Connected Vehicles
Joonbum Lee, John D. Lee, Dario D. Salvucci
Intel Labs Best Student Paper Award - 1st prize

Designing Browsing for In-car Music Player - Effects of Touch Screen Scrolling Techniques, Items Per Page and Screen Orientation on Driver Distraction
Annegret Lasch, Tuomo Kujala

12.00 - 13.30 Lunch
Prescott Room, Sheraton Hotel

13.30 - 14.30 Session 2: Models
Grand Ballroom, Sheraton Hotel

Predicting Information Technology Usage in the Car: Towards a Car Technology Acceptance
Sebastian Osswald, Daniela Wurhofer, Sandra Trösterer, Elke Beck, Manfred Tscheligi
Intel Labs Best Student Paper Award – 3rd prize

Standardizing Model-based In-vehicle Infotainment Development in the German Automotive Industry
Steffen Hess, Anne Gross, Andreas Maier, Marius Orfgen, Gerrit Meixner

Effect of Performance Feedback (or Lack Thereof) on Driver Calibration
Shannon Roberts, William Horrey, Yulan Liang
Intel Labs Best Student Paper Award – 2nd prize

14.30 - 16.00 Poster Session 1 (Full and Short Papers with One Minute Madness, coffee)
Gardner and Lear Rooms, Sheraton Hotel
(see page 12 for details)

16.00 - 17.00 Session 3: Visual / Audio
Grand Ballroom, Sheraton Hotel

How Can We Design 3D Auditory Interfaces Which Enhance Traffic Safety for Chinese Drivers?
Min Juan Wang, Yi Ci Li, Fang Chen

Graded Auditory Warnings During In-vehicle Use: Using Sound to Guide Drivers Without Additional Noise
Johan Fagerlönn, Stefan Lindberg, Anna Sirkka

Is Stereoscopic 3D a Better Choice for Information Representation in the Car?
Nora Broy, Elisabeth André, Albrecht Schmidt

18.00 - 21.00 Conference Reception
Portsmouth Gas Light Co. 3rd floor
Sponsored by Toyota CSRC
(see map on last page)

Friday October 19th 2012

08.30 - 09.30 Session 4: Driver-Vehicle Interface
Grand Ballroom, Sheraton Hotel

Use of Brain Computer Interface to Drive: Preliminary Results
Deanna Hood, Damian Joseph, Andry Rakotonirainy, Sridha Sridharan, Clinton Fookes

The Social Car: New Interactive Vehicular Applications Derived from Social Media and Urban Informatics
Ronald Schroeter, Andry Rakotonirainy, Marcus Foth

Hand Gesture-based Visual User Interface for Infotainment
Eshed Ohn-Bar, Cuong Tran, Mohan Trivedi

Exploring the Back of the Steering Wheel: Text Input with Hands on the Wheel and Eyes on the Road
Martin Murer, David Wilfinger, Alexander Meschtscherjakov, Sebastian Osswald, Manfred Tscheligi

09.30 - 10.30 Session 5: Navigation
Grand Ballroom, Sheraton Hotel

'Get off your car!' - Studying the User Requirements of In-vehicle Intermodal Routing Services
Peter Fröhlich, Matthias Baldauf, Stefan Suette, Dietmar Schabus, Ulrich Lehner, Marko Jandrisits, Alexander Paier

Improving Navigation Support by Taking Care of Drivers' Situational Needs
Daniel Münter, Anna Kötteritzsch, Tobias Islinger, Thorsten Köhler, Christian Wolff, Jürgen Ziegler

Navigation to Multiple Local Transportation Futures: Cross-Interrogating Remembered and Recorded Drives
Alexandra Zafiroglu, Jennifer Healey, Timothy Plowman

10.30 - 11.00 Coffee Break
Ballroom Lobby, Sheraton Hotel

Friday October 19th 2012

11.00 - 12.00 Session 6: Multimodal Interaction
Grand Ballroom, Sheraton Hotel

On the Design and Evaluation of Robust Head Pose for Visual User Interfaces: Algorithms, Databases, and Comparisons
Sujitha Martin, Ashish Tawari, Erik Murphy-Chutorian, Shinko Y Cheng, Mohan Trivedi

Multimodal Interaction in the Car - Combining Speech and Gestures on the Steering Wheel
Bastian Pfleging, Stefan Schneegass, Albrecht Schmidt

Cross-Cultural Differences in the Use of In-vehicle Technologies and Vehicle Area Network Services: Austria, USA, and South Korea
Myounghoon Jeon, Andreas Riener, Ju-Hwan Lee, Jonathan Schuett, Bruce N Walker

12.00 - 13.30 Lunch and Women's Luncheon
Grand Ballroom and Lear Room, Sheraton Hotel

13:30 – 14.00 Industrial Showcase
Grand Ballroom, Sheraton Hotel

OpenDS: A New Open-Source Driving Simulator for Research
Rafael Math, Angela Mahr, Mohammad M Moniri, Chirstian Müller

A Year of Global Connected Car Research
Alexander Muir

14.00 - 15.30 Poster Session 2 (Work in Progress and Demos with One Minute Madness, coffee)
Prescott Room, Sheraton Hotel

15.30 - 16.30 Session 7: Workload and Demand
Grand Ballroom, Sheraton Hotel

Exploring Differences in the Impact of Auditory and Visual Demands on Driver Behavior
Yan Yang, Bryan Reimer, Bruce Mehler, Alan Wong, Mike McDonald

Impact of Word Error Rate on Driving Performance while Dictating Short Texts
Martin Labský, Jan Cuřín, Tomáš Macek, Jan Kleindienst, Ladislav Kunc, Hoi Young, Ann Thyme-Gobbel, Holger Quast

Exploring the Effects of Size and Luminance of Visual Targets on the Pupillary Light Reflex
Andrew Kun, Oskar Palinko, Ivan Razumenić

Defining Workload in the Context of Driver State Detection and HMI Evaluation
Bruce Mehler, Bryan Reimer, Marin Zec

16.30 - 17.00 Closing Remarks
Grand Ballroom, Sheraton Hotel

Poster Session 1: Full and Short Papers

Task Analysis of Vehicle Entry and Backing
Yuqing Wu, Linda Ng Boyle, Daniel V McGehee, Linda S Angell, James Foley

Development of an Automotive User Interface Design Knowledge System
Hao Tan, Yi Zhu, Jianghong Zhao

'FaceLight' - Potentials and Drawbacks of Thermal Imaging to Infer Driver Stress
Bernhard Anzengruber, Andreas Riener

Driver-Vehicle Confluence or How to Control Your Car in Future?
Andreas Riener

Trip Experience Sampling: Assessing Driver Experience in the Field
Alexander Meschtscherjakov, David Wilfinger, Sebastian Osswald, Nicole Perterer, Manfred Tscheligi

Road Type Classification through Data Mining
Phillip Taylor, Sarabjot Singh Anand, Nathan Griffiths, Fatimah Adamu-Fika, Alain Dunoyer, Thomas Popham

Multimodal Reference Resolution for Mobile Spatial Interaction in Urban Environments
Mohammad Mehdi Moniri, Christian Müller

Physical and Spiritual Proximity: Linking CAR2X Communication with Online Social Networks
Monika Mitrevska, Sandro Castronovo, Angela Mahr, Christian Müller

Detection Response Tasks: How Do Different Settings Compare?
Antonia S Conti, Carsten Dlugosch, Klaus Bengler

Heart Rate Measures Reflect the Interaction of Low Mental Workload and Fatigue during Driving Simulation
Udo Trutschel, Christian Heinze, Bill Sirois, Martin Golz, David Sommer, David Edwards

M2M Gossip: Why Might We Want Cars to Talk About Us?
Jennifer Healey, Chieh-Chieh Wang, Andreas Dopfer, Chung-Che Yu

Pedal Misapplications by Older Drivers Induced by Difficulty with Inhibition Function
Takahiko Kimura, Kazumitsu Shinohara

Information Analysis and Presentation based on Cyber Physical System for Automobiles
Kazunari Nawa, Naiwala P Chandrasiri, Tadashi Yanagihara, Kentarao Oguchi

Are 5 Buttons Enough: Destination Input on Touchscreen Keyboards
David Wilfinger, Martin Murer, Manfred Tscheligi

Poster Session 2: Work in Progress and Demos

Work in Progress

A Layout-based Estimation of Presentation Complexity
Christoph Endres, Michael Feld, Christian Müller

Brain Sensing with fNIRS in the Car
Erin Treacy Solovey, Bruce Mehler, Bryan Reimer

In-vehicle Natural Interaction Based on Electromyography
Francesco Carrino, Stefano Carrino, Maurizio Caon, Leonardo Angelini, Omar Abou Khaled, Elena Mugellini

Driving Infotainment App: Gamification of Performance Driving
Chuan Shi, Hae Jin Lee, Jason Kurczak, Alison Lee

Effects of Audio Cues for Song Searching Task on Cell Phone While Driving
Thomas M Gable, Bruce N Walker, Haifa R Moses

Simulator-based Evaluation on the Impact of Visual Complexity and Speed on Driver's Cognitive Load
Christoph Endres, Rafael Math, Daniel Braun

Towards a Simple City Driving Simulator Based on Speed Dreams and OSM
Tigran Avanesov, Nicolas Louveton, Roderick McCall, Vincent Koenig, Martin Kracheel

Speech Dialog Generation from Graphical UIs of Nomadic Devices and the Integration into an Automotive HMI
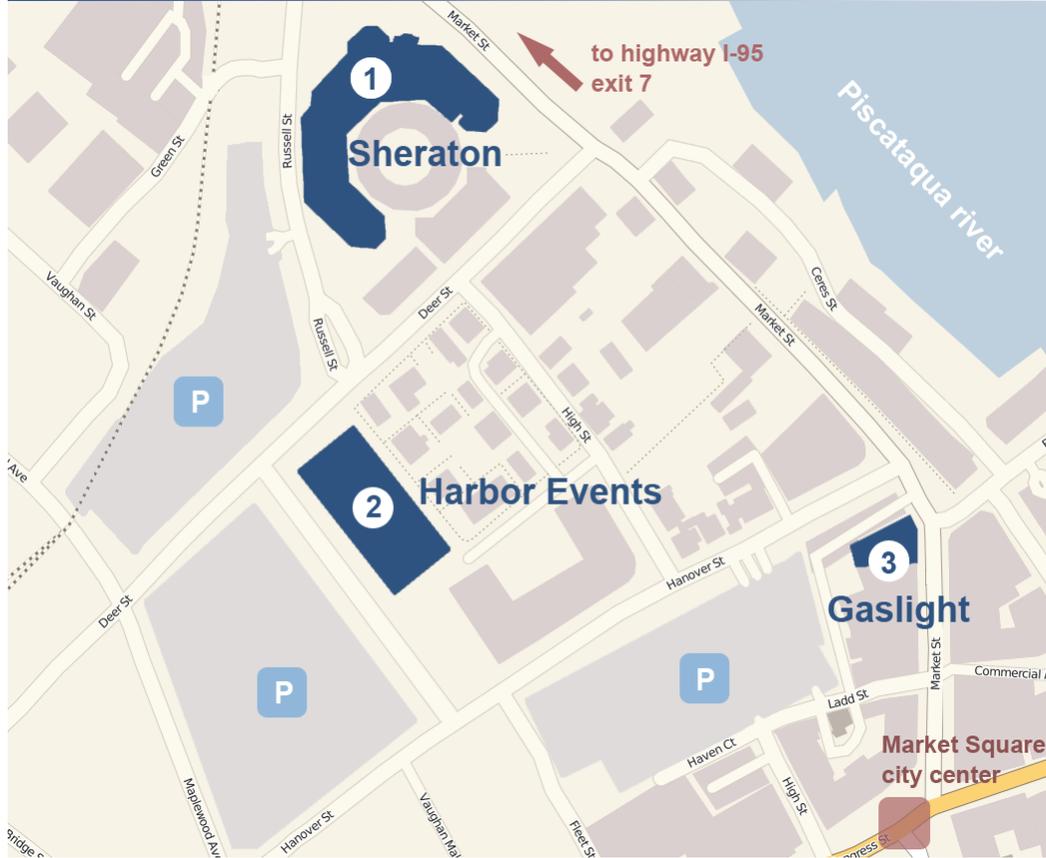*Sven Reichel, Ute Ehrlich, Michael Weber*

Demos

Situation-Aware Personalization of Automotive User Interfaces
Sandro Rodriguez Garzon

COPE1 – Taking Control over EV Range
Anders Lundström, Cristian Bogdan

Map of Locations – – – – – – – – –

1. Sheraton Portsmouth Harborside Hotel
Main Location
Wednesday, Thursday, Friday

2. Portsmouth Harbor Events
Workshops
Wednesday

3. Portsmouth Gas Light Co.
Conference Reception
Thursday 18.00