AVEC '14
Summary

12th International Symposium on
Advanced Vehicle Control
September 22-26, 2014

Tokyo University of Agriculture & Technology
Tokyo, JAPAN
12th International Symposium on Advanced Vehicle Control

Organizer

AVEC '14 Organizing Committee in JSAE

in association with

- International Association for Vehicle System Dynamics (IAVSD)
- International Federation of Automotive Engineering Societies (FISITA)
- IFAC, Technical Committee on Automotive Control (IFAC TC7.1)
- Japan Society of Mechanical Engineers (JSME)
- Society of Instrument and Control Engineers (SICE)
12th International Symposium on Advanced Vehicle Control

Three Chairs of AVEC '14

Organizing Chair
Prof. S. Takehara
Kindai Univ.

General Chair
Prof. M. Nagai
Japan Automobile Research Institute

ISC Chair
Prof. S. Horiuchi
Nihon Univ.
Local Committee

Chair
Prof. Pongsathorn Raksincharoensak
TUAT
Keynote Speeches

Monday  9:30 – 10:20

Dr. Yasuji Shibahata  
(former Honda R&D Executive Chief Engineer)

Vehicle Dynamics Control – What Should be Controlled and What Should be the Index?
Keynote Speeches (cont.)

Tuesday 9:00 – 9:40

Prof. Huei Peng (Univ. of Michigan)
Dr. Peter Sweatman (UMTRI Director)

A Large Scale Field Test of
Connected and Automated Vehicle –
Lessons Learned and Future Outlook
Keynote Speeches (cont.)

Thursday 9:00 – 9:40

Prof. Peter Pfeffer
(Munich University of Applied Sciences)

The Challenges in Automotive and Chassis Engineering
Automated and Connected Driving

- Masao Fukushima (Nissan Motor)
  Autonomous Drive in NISSAN

- Mitsuhisa Shida (Toyota Motor Corporation)
  Automated Highway Driving Assist

- Dr.-Ing. Adrian Zlocki (fka, Aachen)
  Road to Automated Driving – State of the Art and Future Direction

- Dr.-Ing. Roman Henze (TU Braunschweig)
  Efficient Function Development, Testing and Optimization on the Road to Automated Drive
Submitted Abstracts

155 abstracts from 23 countries

- Japan: 54
- Germany: 14
- Korea: 11
- Taiwan: 11
- China: 10
- Sweden: 9
- USA: 9
- France: 8
- UK: 6
- Iran: 5
- Canada: 2
- Finland: 2
- Hungary: 2
- Italy: 2
- Macao: 2
- Algeria: 1
- Austria: 1
- Czech: 1
- India: 1
- Mexico: 1
- Netherlands: 1
- Nigeria: 1
- Thailand: 1
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Delegates by Country

Over 260 delegates from 21 countries

Japan: 153
Korea: 16
Germany: 14
Sweden: 14
China: 14
USA: 14
Taiwan: 10
France: 8
Austria: 6
UK: 6
Canada: 2
Finland: 2
Iran: 2
Belgium: 1
Czech: 1
Italy: 1
Macao: 1
Mexico: 1
Netherlands: 1
Singapore: 1
Thailand: 1
Delegates: Industry/Academia

**AVEC '14**
- Industry: 44%
- Academia: 56%

**AVEC '12**
- Industry: 41%
- Academia: 59%
Technical Visits (Wednesday)

- **Course A**  Twin Ring Motegi (Honda)
  Active Safety Training Park

- **Course B**  Nissan GRANDRIVE
  Driving of the Latest Nissan Vehicles

- **Course C**  Hino Motors
  Customer Technical Center

- **Course D**  Japan Automobile Research Institute
  Driving Simulator, Augmented Reality Vehicle
Social Events

Welcome Reception
Monday 18:00 – 20:00
TUAT Memorial Hall “Ellipse”

AVEC '14 Party
Wednesday 19:00 – 21:40
Tokyo Bay Cruise
Review Process of Best Paper

- All submitted abstracts were evaluated by ISC members and 45 possible candidates were selected.
- Organizing committee members in Japan reviewed full papers to provide a list of 25 papers.
- 10 members of ISC reviewed full papers to narrow down the list to 10 papers.
- ISC members attend presentation of all 10 papers to decide best papers.
Direct Yaw Moment Control and Power Consumption of In-Wheel Motor Vehicle
Takao Kobayashi, Etsuo Katsuyama, Hideki Sugiura, Eiichi Ono, Masaki Yamamoto
Toyota Central R&D Labs., Inc., Toyota Motor Corporation

Road Image Generation with Probe Vehicle Data Using Low-Cost Sensors for ADAS
Junichi Meguro, Hiroyuki Ishida, Chunzao Guo, Koichiro Yamaguchi, Yoshiko Kojima
Toyota Central R&D Labs., Inc.

Roll Control Using Tire Longitudinal Forces Integrated with Tire Force Distribution of Full Drive-by-Wire Electric Vehicle
Yuta Suzuki, Yoshio Kano, Masato Abe, Tomohiro Sugai, Katsutoshi Mogi, Junichi Hirata, Nobuyuki Suzuki
Kanagawa Institute of Technology, NTN Corporation

Predictive Pedestrian Collision Avoidance with Driving Intelligence Model Based on Risk Potential Estimation
Ryosuke Matsumi, Pongsathorn Raksincharoensak, Masao Nagai
Tokyo University of Science, Tokyo University of Agriculture and Technology, Japan Automobile Research Institute
Risk-Potential Based Motion Planning and Control of Proactive Driving Intelligence System for Enhancing Active Safety
Takahiro Hasegawa, Pongsathorn Raksincharoensak, Masao Nagai
Tokyo University of Agriculture and Technology, Japan Automobile Research Institute

Lane Keeping Assistance with Learning-Based Driver Model and Model Predictive Control
Stéphanie Lefèvre, Yiqi Gao, Dizan Vasquez, H. Eric Tseng, Ruzena Bajcsy, Francesco Borrelli
University of California, Berkeley, Inria, Ford Research Laboratories

An Autonomous Lanekeeping System for Vehicle Path Tracking and Stability at the Limits of Handling
Nitin R. Kapania, J. Christian Gerdes
Stanford University

Regeneration of the Trajectory for the Automatic Parallel Parking with Geometric Continuous-Curvature Path Planning
Hélène Vorobieva, Nicoleta Minoiu-Enache, Sébastien Glaser, Saïd Mammar
Renault
Best Paper Awards Finalists 3/3
(Listed in no particular order)

Stochastic Predictive Control of Autonomous Vehicles in Uncertain Environments
Ashwin Carvalho, Yiqi Gao, Stéphanie Lefèvre, Francesco Borrelli
University of California at Berkeley

Estimation of the driver's steering intention for preceding car with the brain current distribution estimation
Toshihito Ikenishi, Takayoshi Kamada, Masao Nagai
Tokyo University of Agriculture and Technology

Tire Force Estimation Utilizing Wheel Torque Measurements and Validation in Simulations and Experiments
Anton Albinsson, Fredrik Bruzelius, Mats Jonasson, Bengt Jacobson
Chalmers University of Technology, Volvo Cars
Best Paper Awards
(in no particular order)

An Autonomous Lanekeeping System for Vehicle Path Tracking and Stability at the Limits of Handling
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Tire Force Estimation Utilizing Wheel Torque Measurements and Validation in Simulations and Experiments
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Roll Control Using Tire Longitudinal Forces Integrated with Tire Force Distribution of Full Drive-by-Wire Electric Vehicle
Yuta Suzuki, Yoshio Kano, Masato Abe, Tomohiro Sugai, Katsutoshi Mogi, Junichi Hirata, Nobuyuki Suzuki
Kanagawa Institute of Technology, NTN Corporation
Finally…

Thank you very much for your interest and participation in AVEC '14.

We look forward to seeing you again in AVEC’16 in Munich.