

## **Preface to Special Section “ATOE 2006” of CIGR Ejournal Vol. IX**

H. Auernhammer and M. Ehrl

Technische Universität München, Center of Life Sciences Weihenstephan, Dept. of Life Science Engineering, Agricultural Systems Engineering, 85354 Freising, Germany.

E-mail: h.auernhammer@wzw.tum.de

### **3<sup>RD</sup> ATOE CONFERENCE 2006 IN BONN, GERMANY**

After Chicago 2002 (Zhang, 2002) and Kyoto 2004 (Zhang et al., 2004), the third conference on “Automation Technology for Off-Road Equipment” (ATOE) was held 2006 in Bonn. According to the custom, again it was a pre-conference of a large CIGR event, the CIGR World Congress 2006. This allowed a reduction of expenditures for all participants, and also placed appropriate emphasis on automation in the off-road area as it is seen as a major topic for land use and agricultural technology today and in future.

More than 110 participants from 13 different countries clearly showed the importance of the young ATOE conference. A total of 49 papers were reviewed by the scientific review committee and were consistently of high quality. All papers were published in the 3rd ATOE proceedings (Rothmund et al., 2006) and were available at the conference. However, due to the high interest on this topic, the proceedings were out of print shortly after the conference.

Without any doubt, the ATOE 2006 conference provided a sound foundation for the future of automation in the off-road area. But there is much additional work necessary to make reliable and smart automated systems widely available and affordable. Many new ideas must be born and a lot of open questions need to be answered to reach “Robot Farming” in the future. Therefore, it is necessary to advance the still young ATOE conference. We expect ATOE 2008 to be realized on a two-year-cycle in order to continue and strengthen the achievements of the past.



Conference Chair of ATOE 2006

### **EDITORIAL**

In order to inform the public about the actual technological situation in the off-road area, the editorial board selected 16 top-level papers presented at the conference. These papers have been revised according to the discussions at the conference and further work by the authors included. Following additional review these 16 papers are presented below.



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**ATOE TABLE OF CONTENTS, VOL. IX. JULY, 2007**

- ATOE 07 001 Bochtis, D. et al. Optimal Dynamic Motion Sequence Generation for Multiple Harvesters (Aristotle University of Thessaloniki, Thessaloniki, Greece)
- ATOE 07 002 Ehrl, M. et al. X-By-Wire via ISOBUS Communication Network (Technische Universität München, Freising-Weihenstephan, Germany)
- ATOE 07 003 Freimann, R. A Basic Approach to Implement Guided Tractor Control (IAV GmbH, Gifhorn, Germany)
- ATOE 07 004 Gavrić, M. et al. Low Cost GPS-based System for Site Specific Farming at Flat Terrains - Case Study (University of Novi Sad, Novi Sad, Serbia)
- ATOE 07 005 Griepentrog, H. W. et al. Autonomous Inter-row Hoeing using GPS Based Side-shift Control (Copenhagen University, Taastrup, Denmark)
- ATOE 07 006 Jørgensen, R. N. et al. HortiBot: A System Design of a Robotic Tool Carrier for High-tech Plant Nursing (Aarhus University, Horsens, Denmark)
- ATOE 07 007 Lenz, J. E. et al. Customized Software in Distributed Embedded Systems: ISOBUS and the Coming Revolution in Agriculture (Phoenix International Corporation, Fargo, USA)
- ATOE 07 008 Nagasaka, Y. et al. Unmanned Rice-Transplanting Operation Using a GPS-Guided Rice Transplanter with Long Mat-Type Hydroponic Seedlings (Japanese National Agricultural Research Center, Tsukuba, Japan)
- ATOE 07 009 Oksanen, T. et al. Path Planning Algorithms for Agricultural Machines (Helsinki University of Technology, Espoo, Finland)
- ATOE 07 010 Ostermeier, R. et al. Multisensor Data Fusion Implementation for a Sensor based Fertilizer Application System (Technische Universität München, Freising-Weihenstephan Germany)
- ATOE 07 011 Pesonen, L. et al. Remote Assisted Task Management for ISOBUS Equipped Tractor-Implement Combination (MTT Agrifood Research Finland, Vihti, Finland)
- ATOE 07 012 Rathmann, S. et al. Latest Trends in Automotive Electronic Systems - Highway meets Off-Highway? (Bosch Engineering GmbH, Abstatt, Germany)
- ATOE 07 013 Rovira-Más, F. et al. Autonomous Guidance of a Corn Harvester Using Stereo Vision (Polytechnic University of Valencia, Valencia, Spain)
- ATOE 07 014 Ryerson, A. E. F. et al. Vehicle Path Planning for Complete Field Coverage Using Genetic Algorithms (University of Illinois, Urbana, USA)

- ATOE 07 015 Younse, P. J. et al. Greenhouse Robot Navigation using KLT Feature Tracking for Visual Odometry (University of Florida, Gainesville, USA)
- ATOE 07 016 Zeitzew, M. A. Autonomous Utility Mower (NavCom Technology, A John Deere Company, Torrance, USA)

#### **ATOE REFERENCES**

- Zang, Q. (Ed.). 2002. Automation Technology for Off-Road Equipment. Proceedings of the 26-27 July Conference Chicago, Illinois. St. Joseph: ASAE 2006, publication 701P0502.
- Zang, Q., M. Iida, and A. Mizushima (Eds.). 2004. Automation Technology for Off-Road Equipment 2004. Proceedings of the 7-8 October 2004 International Conference Kyoto, Japan. St. Joseph: ASAE, publication 701P1004.
- Rothmund, M., M. Ehrl, and H. Auernhammer (Eds.). 2006. Automation Technology for Off-Road Equipment 2006. Proceedings of the 1-2 September 2006 Conference Bonn, Germany. Freising: Landtechnik Weihenstephan.