

Conference Reports

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1ST IFAC CONFERENCE ON TELEMATIC APPLICATIONS IN AUTOMATION AND ROBOTICS – TA 2001

(Weingarten, Germany, July 24th–26th, 2001)

Techniques for tele-operated robots have played for more than 30 years a major role in the context of space missions, as well as in monitoring and handling of hazardous materials. Recent progress in telecommunication and information processing technologies offers now an infrastructure for enabling the provision of services at remote locations with an enormous economic potential. The aim of this first IFAC-conference in telematics (= telecommunications + informatics) was to survey the state-of-the-art with emphasis on applications in automation and robotics. It was organised by the VDI/VDE Gesellschaft Mess-und Automatisierungstechnik (GMA) and the University of Applied Sciences FH Ravensburg-Weingarten.

In order to enable telematic applications, interdisciplinary technology developments from control engineering, distributed information systems and telecommunication have to be integrated. This conference combined sound presentations on new technology developments in those areas with reports on interesting industrial solutions and products in key areas like tele-operation, tele-maintenance and tele-diagnosis. The telematic applications focussed on contributions from the areas of industrial automation, tele-robotics for hazardous environments, spacecraft telemetry and, telecommand, traffic control, smart homes, tele-education, and tele-medicine. This shows that huge development efforts in telematics applications shifted towards a broad spectrum of teleservice applications for a widespread consumer community. The broad application spectrum based on similar technologies stimulated many interdisciplinary discussions during the conference.

Two invited lectures emphasised the industrial importance and the broad application range of telematics research:

- “The Industrial Potential of Telematics Solutions” by Lars Krantz (Asea Brown Boveri)
- “Advanced Tele-Robotic Systems: From Space to Surgery” by Prof. Dr. Gerhard Hirzinger (DLR Oberpfaffenhofen).

The interesting contributions were prepared by 250 authors from 23 countries. 140 people attended the conference; apart from the wide European participation, there was also

a strong American and Asian presence that emphasised the international interest in telematics topics. Due to the application-oriented focus and the relevance of the theme, there was also a significant industry participation.

The region Bodensee-Oberschwaben and the German industry were not only glad to host this first IFAC conference on Telematics Applications in Automation and Robotics, but also sponsored an interesting cultural and social program, including receptions, industrial visits, local high tech demonstrations ranging from organ pipes to Zeppelin airships, and a cruise for the conference dinner on an historical steamboat on the Bodensee. Due to the generous support from the cities Weingarten, Ravensburg, Friedrichshafen and the companies Deutsche Telekom, Bosch, DaimlerChrysler, EADS Dornier/Astrium, Siemens, and ZF a very well balanced social program was offered. It is acknowledged that most of the responsibility for the conference was carried by the VDI/VDE-GMA and by the University of Applied Sciences FH Ravensburg-Weingarten with the significant support from the Ministry of Science, Research and Arts of the State Baden-Württemberg.

Due to the good response to the telematic applications topic, it is planned to organise the “2nd IFAC Conference on Telematics Applications in Automation – TA2004” in June 2004 in Helsinki (Finland). As telematics is considered to be an area with a high scientific and economic potential for automation, a Steering Committee was formed during the conference in order to coordinate the future IFAC activities in telematics. The first task will be to organise the already initiated sessions during the IFAC World Congress in Barcelona.

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6TH IFAC SYMP. ON COST ORIENTED AUTOMATION (LOW COST AUTOMATION 2001) (Oct. 8–9, 2001, Berlin, Germany)

The symposium brought together researchers and industrialists in two plenary sessions, eight regular sessions and two industrial workshops (special sessions). The organizers

intended to rescue Low Cost Automation from its bad reputation by considering mostly the development and application of cheap components of control systems of low performance, just suitable for developing industries. Because of this, the organizers intended to focus on considering and discussing cost-oriented or cost-effective solutions for automation systems. This intention was quite successful. Despite expensive components, the life cycle of automation systems regarding design, production, operating, maintenance, reconfiguration and recycling was cost effective (cost of ownership). The participants of the Industrial Workshops I and II on "Virtual Programmable Logic Control" and "Lifecycle Costs" presented and discussed new developments in these fields. As it turned out, companies are currently refraining from the implementation of highly automated systems because they are too inflexible, and their maintenance and reconfiguration is too expensive. Companies are looking for cost-effective solutions. Additionally, the invited keynote speech of the second plenary session, "Maintenance Holistic Framework for Optimizing the Cost/Availability Compromise of Manufacturing Systems" stressed these problems.

The invited keynote speech "Low Cost Automation in Field Robotics" of the first plenary session discussed the development and application of field robots in domains like agriculture, fisheries, environment protection, underwater and space exploration. The recent developments of information processing and communication technologies (such as wireless links) play an important role in reducing the costs.

The topics of the eight regular sessions of four contributions each were

- Controls for Manufacturing Systems

- Simulation of Manufacturing Systems and Processes
- Actuators and Sensors
- Programmable Logic Controls
- Robotics
- Information Processing for Shop Floor Control
- Human-Machine Interfaces
- Implemented Solutions

The contributions considered cost-oriented developments of components like smart sensors and actuators, their application in automation systems and interesting implemented solutions in respect to their cost-effectiveness.

The Low Cost Automation Symposium was organized by the Technische Universität Berlin/Center of Human-Machine Systems and the Fraunhofer Institute for Production Systems and Design Technology (IPK-Berlin) on behalf of the VDI/VDE Gesellschaft für Mess- und Automatisierungstechnik. It was sponsored by the IFAC Technical Committee on Low Cost Automation (MIL) with the Technical Committees on Components & Instruments (MIC), Manufacturing, Modeling, Management & Control (MIM), Advanced Manufacturing Technology (MIT), Human-Machine-Systems (SMH), Developing Countries (GEA), Social Impact of Automation (GES) and Transportation Systems (TVT) as co-sponsors.

A 7th Symposium is planned for 2004 in either South Africa or Canada.

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