

SCIENTIFIC EVENTS

Third World Automation Congress

May 10-14, 1998

William Egan Convention Center

Anchorage, Alaska, USA

The 3rd World Automation Congress, WAC'98, included the 7th International Symposium on Robotics and Applications (ISORA'98), the 6th International Symposium on Manufacturing and Applications (ISOMA'98), the 2nd International Symposium on Intelligent Automation and Control (ISIAC'98), the 2nd International Symposium on Soft Computing for Industry (ISSCI'98), and the 1st International Forum on Multimedia and Image Processing (IFMIP'98) and was held from Sunday, May 10, 1998 through Thursday, May 14, 1998, in Anchorage, Alaska, the USA's "Last Frontier". The Congress consisted of 15 technical tutorials, 3 cultural tutorials (one on seafood cooking, another on deep sea fishing, and the third one on river fishing), followed by some 150 technical sessions covering practically all aspects of control systems, robotics, manufacturing, automation, soft computing, multimedia, financial engineering and image processing.

WAC'98 was dedicated to Professor Brian D.O. Anderson, -a Fellow of the Royal Society - for his outstanding contributions to control discipline, as researcher, educator, and administrator. As a researcher he contributed significantly to stability, adaptive control, filtering and optimal control. As an educator he authored and co-authored numerous recognized books in control, and he conducted many doctoral and post-doctoral theses. As an administrator he was a very efficient President of IFAC and head of a reputable research school at the Australian National University.

Apart from its very rich technical presentations, WAC'98 had the merit of attracting some of the top scientists and technologists from around the globe as keynote speakers, panelists, chairs, and authors. Among the personalities one can mention Professor Brian O. D. Anderson, Australian National University, Dr Darwish Al-Gobaisi, Encyclopedia of Life Support Systems,

Professor Nasir Ahmed, University of New Mexico, Professor Michael Athans, Massachusetts Institute of Technology, Dr. Kathrine Burr, Hanseatic Corporation, Professor Zeungnam Bien, KAIST, Professor Edward J. Davison, University of Toronto, Professor Katsuhira Furuta, Tokyo Institute of Technology, Professor Madan M. Gupta, University of Saskatchewan, Dr. Stephen Kahne, Embry-Riddle Aeronautical University, Professor Pradeep Khosla, Carnegie Mellon University, Professor Mohamed Mansour, Swiss Federal Institute of Technology, Professor Jerry Mendel, University of Southern California, Professor Andrew P. Sage, George Mason University, Professor Michio Sugeno, Tokyo Institute of Technology, Professor Takeshi Yamakawa, Kyushu Institute of Technology, Professor Lofti A. Zadeh, University of California at Berkeley, Professor Mohammad Jamshidi, NASA University Research Center, Albuquerque, New Mexico.

Being addressed to practicing engineers, graduate students in science and technology areas, managers and university researchers the organized Tutorial Workshops covered many of the following cutting-edge technologies:

1. Soft Computing: Fuzzy Logic, Neural Networks and Evolutionary Computation - 6 hours
2. Dynamic Modeling, Simulation and Control of Flexible Manipulators with Applications to Space Station and Environmental Restoration - 6 hours
3. Fuzzy System Modeling: Synthesis of Theory and Applications - 3 hours
4. Linguistic Geometry for Intelligent Control Construction of Strategies in Robotics, Manufacturing, Combat Simulation - 3 hours

5. A Financial Engineering Practitioner's Perspective - 3 hours
6. Fuzzy-Neural Systems - 3 hours
7. The Role of Soft Computing Techniques in Earth Sciences - 3 hours

As to the Plenary Papers, these covered a large area of subjects and contributions by some well-known scientific people. Among the titles and contributors, one can mention:

1. From Wiener to Hidden Markov Models: Common Threads of Filtering and Smoothing, B.D.O. Anderson, Australian National University.
2. Distributed Estimation Problems, Michael Athans, MIT, USA.
3. Back to Mars - The Mars Pathfinder Mission, Richard Cook, Jet Propulsion Laboratory, USA.
4. JPL Robotics Technology Development for Planetary Exploration, Charles R. Weisbin, Jet Propulsion Laboratory, USA.
5. Fuzzy Logic in System Analysis and Control, Lofti A. Zadeh, University of California, Berkeley, USA.
6. Design of Optimal Controllers Which Work, Edward Davison, University of Toronto, Canada
7. System Theory and Human Science, Mohamed Mansour, Swiss Federal Institute of Technology, Zurich, Switzerland.
8. Rule Extraction with Clustering Algorithms, James Bezdek, University of Western Florida, USA.
9. The Fuzzy Logic Advisor: A New Paradigm for Making Judgements, Jerry M. Mendel, University of Southern California, USA.
10. Recent Advances in Fuzzy Control: Stability Issue and Application to an Unmanned Helicopter, Michio Sugeno, Tokyo Institute of Technology, Japan.

11. Intelligent Systems - Past Successes and Future Opportunities, Pradeep Khosla, Carnegie Mellon University, USA.

The WAC'98 included 4 Panel Sessions having the following subjects:

1. Encyclopedia of Life Support Systems (EOLSS) - World Sustainable Development and the Role for Automation, chair Andrew P. Sage, George Mason University, USA.
2. Fuzzy Control Versus Modern Control - Issues and Contentions, chair Mo Jamshidi, University of New Mexico, USA.
3. NASA's Investment in America's Future, NASA Headquarters, USA.
4. Nonlinear Financial Applications to Emerging Markets, chair Kathrine Burr, Hanseatic Corporation, USA.

The technical sessions of WAC'98 were mainly dedicated to the following subjects: automation of fish processing, fuzzy control, robot manipulator control, industrial applications of computational intelligence, fuzzy logic: hardware, implementation and applications, autonomous underwater vehicle design & applications, fault tolerant systems: design and control, fuzzy logic & robotics, agent - based manufacturing, robust systems, robot trajectory planning, distributed robotics and multiagent systems, autonomy and computational intelligence, learning cyclic control/behavior in robotics, intelligent scheduling, biomedical applications, control of mirrors for space applications, process monitoring and diagnosis, traffic flow control, system identification and control, sensor applications and control, fuzzy control and power systems applications, modeling and control of robotic systems, parallel mechanisms: analysis and applications, image processing, advanced multimedia, military and planetary robotics, mobile robotics, motion planning and control of robots, soft computing in industry, practical issues in robotics, machine intelligence, design of fuzzy controllers, learning control, intelligent systems in business and engineering, neural networks in manufacturing, digital signal processing: design and applications, decentralized and multi-agent systems, mobile robots and vehicles, flexible robots and structures, spacecraft applications, stability of systems, parallel robots and redundant planning

for intelligent robots, information technology, medical applications, interactive visual environment for design, actuators and positioning systems, observers and filters, linear systems, optimization of processes, new techniques for mobile robot perception, neural network design, soft computing methodologies in industry, satellite communication, medicine and soft computing.

industrial process control, knowledge-based intelligent and control, manufacturing systems and processes, intelligence and control in mechatronics, vision applications, robot motion generation, image detection, neuro-fuzzy techniques and applications, fuzzy systems applications, pattern recognition, sensing and recognition, image retrieving, multimedia information retrieval, soft computing and intelligent systems, system change detection and isolation, fuzzy control of water purification systems, evolutionary programming, hybrid approaches, robotic navigation and control, telerobotics, intelligent manufacturing, stochastic filtering and control, industrial applications of intelligent control, technical image and sound processing, stable time-delay systems, vibration control, adaptive fuzzy control, industrial trends in intelligent systems.

WAC'98 hosted a book exhibition and a technical exhibition. The book exhibition presented books published by Springer, Birkhäuser, Prentice Hall, Elsevier, etc. Among the technical exhibitors there were the University of New Mexico, NASA ACE Center, EOLS Encyclopedia of Life Support Systems, TSI Enterprises, Inc., NASA Office of Equal Opportunities, NASA National Alliance of University Research Centers, University of the New Mexico School of Engineering.

The WAC'98 atmosphere was very stimulating, with a very good attendance and proficient discussions. High-level presentations and high-value contributions made the keynote at the Congress.

The social programme of WAC'98 included a Welcome Reception at "Captain Cook" Hotel, a Talent Show at William Egan Convention Center and the banquet at Sheraton Hotel. During the banquet the WAC'98 honoree Professor Brian D. O. Andersson was honoured formally, and the Brian Anderson, WAC and students best papers awards were granted.

The WAC'98 Proceedings will be Volumes 6 through 10 of the TSI Press Series on Intelligent Automation and Soft Computing. At the Congress all those who paid the registration fee were offered the Proceedings on CD ROM.

The members of the Organizing Committee and of the Programme Committee did an excellent job, by cleverly conducting the Congress and offering the best conditions to the participants.

WAC'98 was a remarkable scientific event. This is the result of a hard work of many people, who spent a lot of their valuable time over the past two years, of the diligent work of the New Mexico and regional organizing teams in Canada, Korea, Germany and France, and of a close and cordial co-operation of many individuals in Anchorage. Last, but not least, we must mention the contribution made by Professor Mo Jamshidi and his main role in the organisation of WAC Congresses. The next edition of the Congress, WAC 2000, will be held in Maui, Hawaii, USA.

Acknowledgment. I would like to express my sincere gratitude to Professor Mo Jamshidi, general chair of WAC'98, for his generous hospitality. Acknowledgment is also due to those having encouraged and kindly supported my participation in the Congress.

Theodor -Dan Popescu