



# 2003 IEEE INTERNATIONAL SYMPOSIUM ON INTELLIGENT CONTROL



October 5-8, The Westin Galleria, Houston, Texas, USA

## TUTORIAL WORKSHOPS

Looking to upgrade your technical knowledge base? Plan now to attend one or more of the tutorial workshops that have been planned as part of the ISIC'03 in Houston. The following workshops will be held on **Sunday, October 5, 2003**:

### *Morning Tutorial Workshops: 8:00am-12:00pm*

- **Multiresolutional Hierarchical Decision Support Systems**

Alex Meystel, Drexel University

Multiresolutional Analysis: Elements of the Theory - Decision Support of Behavior Generation - Multiple Resolution Levels and Intentionality - On the Similarities with and Differences from the Existing Systems with Elements of Multiresolutional Analysis - Multiresolutional Planning/Control in a Representation Space with a Given Goal - Learning the Representation Space in MRDS: The Phenomenon of "Sea Weeds" - The Integration of Planning/Control and Learning within MR DSS - Planning, Control, and Learning: the Possibility of a Unified Theory - Application 1: Autonomous Vehicles - Application 2: Spray Casting Robots - Application 3: Energy Systems Application 4: Various Systems with Heterogeneous Representation

- **Computational Intelligence for Identification, Control and Optimization of Nonlinear Systems**

Ganesh K. Venayagamoorthy, University of Missouri-Rolla

Ronald G. Harley, Georgia Institute of Technology

Neural Networks - Swarm Intelligence - Nonlinear System identification using neural networks - Adaptive Neurocontrol - Optimal Neurocontrol - Power Systems

### *Afternoon Tutorial Workshops: 1:00pm-5:00pm*

- **Smart Embedded Systems for Control**

Jagannathan Sarangapani, University of Missouri-Rolla

Sesh Commuri, The University of Oklahoma

Design Issues in Embedded Control - State-of-the-Art - Design Paradigms for Implementing Embedded Controllers - Performance Metrics for Distributed Embedded Control - Smart Controls: From Specification to Validation

- **Soft Computing in the Smart Cockpit**

John Valasek and John H. Painter, Texas A&M University

Simulator-Based Cockpit Software Multidisciplinary Research - Function-based Cockpit Software Architecture Approach - Free-Flight Cockpit System Functionality - Specification & Partitioning - O-O Design & Data - Communication for Modular Architectures - Major Software Modules in Simulator and Cockpit - Hazard Avoidance Trajectories by Autonomous Software Agents - Use of Intelligent Software Techniques in Cockpit Software Modules - In-Cockpit Graphic Interfaces for the Pilot - Distributed Computing in Simulator and Cockpit - Getting it All Together and Using It

- **Fuzzy Logic Control: Analysis and Synthesis**

Reza Lengari, Texas A&M University

Kazuo Tanaka, University of Electro-Communications, Tokyo

Hua Wang, Boston University

Introduction to fuzzy set theory and logic - Fuzzy logic and its role in control engineering - Design/implementation issues in fuzzy control - Analytical study of fuzzy control systems - Advanced applications of fuzzy control.

For more information, go to <http://vlab.ee.nus.edu.sg/~isic2003/>

# Technical Program-at-a-Glance

## MONDAY, OCTOBER 6, 2003

8:30–9:30: Plenary Session, Plaza II <i>Nonlinear Network Control</i> Professor Frank Lewis, The University of Texas at Arlington				
9:30–10:00: Coffee Break, Plaza Foyer				
Track	1	2	3	4
Room	Plaza I	Plaza II	West Alabama	Chevy Chase
MA Sessions 10:00-12:00	Adaptive Control	Learning Control	Machine Learning	Advanced Control I
12:00-13:30: Lunch Break				
MM Sessions 13:30-15:30	Neural Network Control	Control Applications I	Fuzzy Control and Applications (Invited Session)	Intelligent Robotics (Invited Session)
15:30-16:00: Coffee Break, Plaza Foyer				
MP Sessions 16:00-18:00	Fuzzy Control	Control Applications II	Optimal Control and Optimization	Manufacturing Systems

## TUESDAY, OCTOBER 7, 2003

8:30–9:30: Plenary Session, Plaza II <i>Distributed Intelligence</i> Professor Ricardo Sanz, Universidad Politécnica de Madrid				
9:30–10:00: Coffee Break, Plaza Foyer				
Track	1	2	3	4
Room	Plaza I	Plaza II	West Alabama	Chevy Chase
TA Sessions 10:00-12:00	Advanced Control II	Signal Processing	Complex Systems and Applications (Invited Session)	Adaptive Critic Control (Invited Session)
12:00-13:30: Lunch Break				
TM Sessions 13:30-15:30	Conference-Wide Panel Discussion Intelligent Control Imitating Biology: Promises, Challenges and Lessons Professor Panos Antsaklis, The University of Notre Dame			
15:30-16:00: Coffee Break, Plaza Foyer				
TP Sessions 16:00-18:00	Advanced Control III	Intelligent Systems	Path Planning and Navigation	Computer Vision

## WEDNESDAY, OCTOBER 8, 2003

8:30–9:30: Plenary Session, Plaza II <i>Intelligent Control of Mechatronic Systems</i> Professor T. H. Lee, National University of Singapore				
9:30–10:00: Coffee Break, Plaza Foyer				
Track	1	2	3	4
Room	Plaza I	Plaza II	West Alabama	Chevy Chase
WA Sessions 10:00-12:00	Fault Detection	Soft Computing I	Autonomous Systems and Navigation (Invited Session)	Development in Nonlinear Control (Invited Session)
12:00-13:30: Lunch Break				
WM Sessions 13:30-15:30	Mobile Robots	Soft Computing II	Factory Automation	Robotic Systems
15:30-16:00: Coffee Break, Plaza Foyer				
WP Sessions 16:00-18:00	Neural Networks and Fuzzy Systems	Control Designs	Advanced Computing	Intelligent Techniques

For more information about registration and conference hotel, go to

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