

# IEEE RACS

2009

## International Workshop on Robotics, Automation and Control Systems

**May 30 - June 1, 2009**



**Macau**

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# Technical Program

**Time:** 2:00-6:00pm, Sunday, May 31, 2009

**Venue:** S.T.D.M. Auditorium, UM International Library

Title of Speech: Consensus Control for Networked Teams

**Frank L. Lewis** FIEEE, FIFAC

Moncrief-O'Donnell Endowed Chair Professor

Automation & Robotics Research Institute

The University of Texas at Arlington

Research Areas:

Intelligent Nonlinear Control; Approximate Dynamic Programming; Discrete Events;

Supervisory Control

<http://arri.uta.edu/acs/bios/lewis.htm>

Title of Speech: Robotics: From Teleoperation to Intelligent Machine

**Tzyh Jong Tarn** IEEE Life Fellow

Full Professor of Systems Science and Mathematics

Department of Electrical and Systems Engineering

Washington University in St. Louis

Research Areas:

Quantum Control, Robotics and Automation, Nanotechnology and Mathematical Systems Theory.

<http://wuauto.wustl.edu/tjtarn.shtml>

Title of Speech: Development of Unmanned Vertical Take-Off and Landing Rotorcraft Systems

**Ben M. Chen** FIEEE

Full Professor

Department of Electrical and Computer Engineering

National University of Singapore

Research Area:

Linear Systems; Composite Nonlinear Feedback (CNF) Control; Technical Analysis of Stocks

<http://vlab.ee.nus.edu.sg/~bmchen/>

Title of Speech: Invariant Subspace of Boolean Networks

**Daizhan Cheng** FIEEE, FIFAC

Full Professor

Institute of Mathematics and System Sciences

Chinese Academy of Sciences

Research Areas:

Nonlinear System Control; Hamiltonian System; Numerical Method in System; Analysis and Control; Complex Systems.

<http://lsc.amss.ac.cn/~dcheng/>

Title of Speech: Computing a Discrete Tarski Fixed Point with a Simplicial Algorithm

**Chuanyin Dang**

Associate Professor

Department of Manufacturing Engineering and Engineering Management

City University of Hong Kong

Research Area:

Computational Optimization and Applications; Logistics and Supply Chain Management; Modelling and Analysis in Economics and Finance

<http://www.cityu.edu.hk/me/staff/mecdang.htm>

Title of Speech: A New Approach to Dynamic Fuzzy Modeling of Genetic Regulatory Networks

**Gang Feng FIEEE**

Full Professor

Department of Manufacturing Engineering and Engineering Management

City University of Hong Kong

Research Area:

Intelligent systems and control using fuzzy logic and neural networks; Hybrid systems and control; Robot networks and control; Systems biology

<http://www.cityu.edu.hk/me/staff/megfeng.htm>

Title of Speech: Global Disturbance Rejection of the Nonlinear Benchmark Control System

**Jie Huang FIEEE, FIFAC**

Full Professor

Department of Mechanical and Automation Engineering

The Chinese University of Hong Kong

Research Area:

Control theory and applications; Robotics and automation; Neural networks and scientific computing; Guidance and control of flight vehicles

<http://www2.mae.cuhk.edu.hk/~jhuang/>

Title of Speech: Spectral Analysis of Life - a special presentation for birthday of Frank Lewis

**Han Xiong Li**

Full Professor

Department of Manufacturing Engineering and Engineering Management

City University of Hong Kong

Research Area:

Intelligent control and learning; Process design and control; Electronic packaging process; Distributed parameter system

<http://www.cityu.edu.hk/me/staff/mehxli.htm>

Title of Speech: 3D Human Motion Recognition Technology Using MEMS Motion Sensors

**Wen J. Li**

Full Professor and Director, Centre for Micro and Nano Systems

Department of Mechanical and Automation Engineering

The Chinese University of Hong Kong

Research Area:

Micro/Nano sensors; Actuators; Fluidics and assembly; Bio-MEMS; Nano-Bio-detection

<http://www.bme.cuhk.edu.hk/~wjli.html>

Title of Speech: A Trajectory Signature for Motion Description

**Youfu Li**

Associate Professor

Department of Manufacturing Engineering and Engineering Management

City University of Hong Kong

Research Area:

Robot vision; Visual inspection; Visual tracking; 3D vision; Robot sensing; Sensor based control; Sensor guided manipulation; Force control; Robotics; Mechatronics and automation

<http://personal.cityu.edu.hk/~meyfli/>

Title of Speech: Hybrid Assistive Knee Braces with Smart Actuators

**Wei-Hsin Liao, FIOP**

Full Professor

Department of Mechanical and Automation Engineering

The Chinese University of Hong Kong

Research Area:

Smart Materials and Structures; Vibration Control; Energy Harvesting; Mechatronics; Precision Machinery; Nanotechnology; Medical Devices;

<http://www.mae.cuhk.edu.hk/~whliao>

Title of Speech: Vision-based Control of Autonomous Helicopters

**Yunhui Liu FIEEE**

Full Professor;

Department of Mechanical and Automation Engineering

The Chinese University of Hong Kong

Research Area:

Visual servoing of dynamic systems; Medical robotics; Internet robotics; Education robotics; Multi-fingered grasping; Active sensor networks.

<http://www2.mae.cuhk.edu.hk/~yhliu/>

Title of Speech: Development of Active Wireless Capsule Endoscope

**Qinghu Meng FIEEE**

Full Professor

Department of Electronic Engineering

The Chinese University of Hong Kong

Research Area:

Biomedical engineering; Medical and surgical robotics; Active capsule endoscopy; Medical image based automatic diagnosis; Interactive tele-medicine and tele-healthcare; Bio-sensors and multi-sensor data fusion; Bio-MEMS with medical applications; Biomedical devices and robotic assistive technologies and prosthetics; Adaptive and intelligent systems; Related medical and industrial applications

<http://www.bme.cuhk.edu.hk/~qhmeng.html>

**Li Qiu FIEEE**

Full Professor

Department of Electronic and Computer Engineering

Hong Kong University of Science and Technology

Research Area:

System, control, and information theory; Applied mathematics for information technology

<http://www.ece.ust.hk/~eeqiu/>

**Ling Shi**

Assistant Professor

Department of Electronic and Computer Engineering

Hong Kong University of Science and Technology

Research Area:

Networked Sensing, Estimation, and Control; Distributed Estimation, Control, and Optimization; Sensor Scheduling, Signal Processing, and Data Fusion

<http://www.ee.ust.hk/~eesling/>

Title of Speech: Robotic Whole-Hand Grasping and Fixturing

**Yu Wang** FIEEE, FASME, FHKIE

Full Professor

Department of Mechanical and Automation Engineering

The Chinese University of Hong Kong

Research Area:

Geometric, Structural, Material and Nano Design and Optimization; Automation for Photonic and Electronic Packaging; Vibrations and Precision Engineering; Manufacturing and Automation

<http://www2.mae.cuhk.edu.hk/~yuwang/>

Title of Speech: Input-output Transition Models for Switched Linear and Nonlinear Systems

**Cheng Xiang**

Associate Professor

Department of Electrical and Computer Engineering

National University of Singapore

Research Areas:

Intelligent Control, Computational Intelligence, Pattern Recognition

<http://www.ece.nus.edu.sg/>

Title of Speech: Energy-Efficient Task Allocation in Wireless Sensor Networks

**Wendong Xiao**

Senior Research Fellow

Institute for Infocomm Research

Agency for Science, Technology and Research (A\*STAR), Singapore

Research Area:

Communications Systems – Wireless; Signal Processing; Sensor networking

Title of Speech: Quantized Feedback Control with Logarithmic Quantizer

**Lihua Xie** FIEEE, FIES

Full Professor, and Director of Center of Intelligent Machines

School of Electrical and Electronic Engineering

Nanyang Technological University

Research Area:

Robust control; Networked control systems; Sensor networks; Estimation theory and signal processing; Delay systems; Control of hard disk drives

<http://www.ntu.edu.sg/home/elhxie/>

*All are welcome!*