



ONE DAY ROBOTIC WORKSHOP

ON

ROBOTS AND THE HUMAN

By

**Professor Oussama Khatib**

Stanford University

**Friday, 29 Jan 2010**

9.00 AM TO 5.00 PM

**Rose Room I, Upper Lobby Level**

York Hotel Singapore

21 Mount Elizabeth, Singapore 228516

The Robotic Workshop is held in cooperation with

**IEEE Robotics and Automation Society Singapore Chapter**

and is jointly organised by

**Robotic Games Society (Singapore), Institute of Technical Education, Nanyang Polytechnic, Nanyang Technological University, National University of Singapore, Ngee Ann Polytechnic, Republic Polytechnic, Singapore Polytechnic, Singapore Science Centre & Temasek Polytechnic.**

## REGISTRATION FORM

Robots And The Human

### COMPANY DATA

COMPANY: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

\_\_\_\_\_

POSTAL CODE: \_\_\_\_\_

TEL: \_\_\_\_\_ FAX: \_\_\_\_\_ E-mail: \_\_\_\_\_

CONTACT PERSON: \_\_\_\_\_

### PARTICIPANTS FOR THE WORKSHOP

1. NAME: Mr. / Mrs. / Dr.\* \_\_\_\_\_

DESIGNATION: \_\_\_\_\_ E-mail: \_\_\_\_\_

2. NAME: Mr. / Mrs. / Dr.\* \_\_\_\_\_

DESIGNATION: \_\_\_\_\_ E-mail: \_\_\_\_\_

3. NAME: Mr. / Mrs. / Dr.\* \_\_\_\_\_

DESIGNATION: \_\_\_\_\_ E-mail: \_\_\_\_\_

*\* Cancel where applicable*

**Number of Car Park Pass(es) required (entry via Mt. Elizabeth) : \_\_\_\_\_**

**Diet restrictions – Muslim Food \_\_\_\_\_ , Vegetarian \_\_\_\_\_**

Fee enclosed: S\$ \_\_\_\_\_. Cheque should be crossed and made payable to **Robotic Games Society (Singapore)**. Completed forms and cheques should be sent to:

**Mr. Yee Choon Seng**  
**Department of Mechanical Engineering**  
**National University of Singapore**  
**9 Engineering Drive 1, Singapore 117576**

Tel: 6516-2137 Fax: 6779-1459 E-mail: mpeyeecs@nus.edu.sg

## Robotic Workshop on Robots And The Human

This workshop focuses on the new emerging applications of robotics in human environments and in interactive haptic simulation of complex virtual environments. Robots are today moving towards applications beyond the structured environment of a manufacturing plant. They are making their way into the everyday world that people inhabit. The emphasis is on the models, strategies, and algorithms associated with the autonomous behaviors needed for robots to work, assist, and cooperate with humans. In addition to the new capabilities they bring to the physical robot, these models and algorithms and more generally the body of developments in robotics is having a significant impact on the virtual world. Haptic interaction with an accurate dynamic simulation provides unique insights into the real-world behaviors of physical systems. The potential applications of this emerging technology include virtual prototyping, animation, surgery, cooperative design, and education among many others.

### Overview

\* A 50-Year History of Robotics \* Human-Centered Robotics \* Interactive Haptic Simulation

### Foundations

\* Robot Kinematics & Dynamics \* Task-Oriented Dynamics & Control \* Inertial Properties of Articulated Structures \* Robot Cooperation & Human Interaction

### Human-Centered Robotics

\* Mobile Manipulation \* Whole-Body Modeling & Control \* Task & Posture as Energies \* Learning Human Natural Motion

### Emerging Applications

### About the Speaker

**Prof Oussama Khatib** is Professor of Computer Science at Stanford University. His work is on autonomous robots, human-centered robotics, human-friendly robot design, dynamic simulations, and haptic interactions. The emphasis of his research is on methodologies and technologies that address the intricate dynamic nature of these systems, provide the capabilities needed for their action and interaction with the environment, and cope with their real-time requirements. Professor Khatib is the President of the International Foundation of Robotics Research (IFRR). He was the Program Chair of ICRA 2000 and a co-editor of "The Robotics Review." He is a "Distinguished Lecturer" of the IEEE Robotics and Automation Society and a recipient of the JARA Award.

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## Details of Robotic Workshop

Date : Friday, 29 Jan 2010

Time : 9.00 am to 5.00 pm

Fee : S\$350 per participant.

10% discount for early registration, received with payment before 20<sup>th</sup> Jan 2010.

Students: S\$70 for full time students.

Photocopies of student matriculation card must be submitted with registration.

Venue : Rose Room I, Upper Lobby Level  
York Hotel Singapore, 21 Mount Elizabeth,  
Singapore 228516

Web site: <http://www.yorkhotel.com.sg>

Tel: +65-6737-0511

## **Who Should attend:**

Engineers, professional, scientists, and students involved or interested in creative design using new technologies, robotics, and automation.

## **PROGRAMME**

8.30 am Registration

8.55 am Welcome Address by Dr. Marcelo Ang

9.00 am Session 1

10.00 am Tea Break

10.30 am Session 2

12.30 pm Lunch

1.30 pm Session 3

3.00 pm Tea Break

3.30 pm Session 4

5.00 pm End of Workshop