

# ICCAS-SICE 2009

ICROS-SICE International Joint Conference 2009

**August 18 (Tue.) – 21 (Fri.), 2009**

Fukuoka International Congress Center, Fukuoka, JAPAN

<http://www.sice.or.jp/ICCAS-SICE2009/>

## -General Chairs

Masatoshi Nakamura (Saga Univ., Japan)

Jin Seog Choi (President of ICROS, Korea)

## -Organizing Chairs

Keigo Watanabe (Saga Univ., Japan)

Keum-Shik Hong (Pusan National Univ., Korea)

## -Advisory Board (alphabetical order)

Wayne Book (Georgia Inst. of Tech. USA)

David Castanon (President of IEEE/CSS, USA)

Hyung Suck Cho (President of ACA, Korea)

Li-Chen Fu (Nat'l Taiwan Univ., Taiwan)

Toshio Fukuda (Nagoya Univ., Japan)

Katsuhiro Furuta (President of Tokyo Denki Univ., Japan)

Shinji Hara (Vice-President of SICE, Japan)

Fumio Harashima (Tokyo Denki Univ., Japan)

Shigeo Hirose (Tokyo Inst. of Tech., Japan)

Sung Kwun Kim (Past-President of ICROS, Korea)

Hidenori Kimura (Past-President of ACA, Japan)

Wook Hyun Kwon (President of IFAC, Korea)

Kazuo Kyuma (President of SICE, Japan)

Akira Nagashima (Past-President of SICE, Japan)

Kouhei Ohnishi (President of IEEE/IES, Japan)

Chongkuk Park (Former Honorary President of ICASE, Korea)

Guenther Schmitz (Technische Universität München, Germany)

Bruno Siciliano (President of IEEE/RAS, Italy)

Susumu Tachi (Past-President of SICE, Japan)

## -Program Co-Chairs

Kazushi Nakano (Univ. of Electro-Communications, Japan)

Kenji Sugimoto (Nara Inst Science and Technology, Japan)

Chung Choo Chung (Hanyang Univ., Korea)

## -International Relations Co-Chairs

Satoshi Tadokoro (Tohoku Univ., Japan)

Yoshito Ohta (Kyoto Univ., Japan)

Hideki Hashimoto (Univ. of Tokyo, Japan)

Fumitoshi Matsuno (Univ. of Electro-Communications, Japan)

Hyoun-Seop Kim (Kyushu Inst. Tech., Japan)

Mun Sang Kim (KIST, Korea)

Shuzhi Sam Ge (Nat'l Univ. of Singapore, Singapore)

Harijono A. Djokonegoro (ITB, Indonesia)

David Banjerpongchai (Chulalongkorn Univ., Thailand)

Yimin Shao (Chongqing Univ., China)

Kosin Chamnongthai (KMUTT, Thailand)

Kobchai Dejhan (KMITL, Thailand)

Koichi Osuka (Kobe Univ., Japan)

Tzuu-Hseng Steve Li (Nat'l Cheng Kung Univ., Taiwan)

## -Publication Chairs

Kiyotaka Izumi (Saga Univ., Japan)

Kang-Bak Park (Korea Univ., Korea)

## -Finance Chairs

Kazuo Ishii (Kyushu Inst. Tech., Japan)

Suk Lee (Pusan National Univ., Korea)

## -Industrial Relations Chairs

Takenao Sugi (Saga Univ., Japan)

Nobutomo Matsunaga (Kumamoto Univ., Japan)

## -Technical Area Co-Chairs

Seiji Ishikawa (Kyushu Inst. Tech., Japan)

Takakazu Ishimatsu (Nagasaki Univ., Japan)

Youdan Kim (Seoul National Univ., Korea)

Chang-Soo Han (Hanyang Univ., Korea)

Hyungsuk Kim (Chonbuk National Univ., Korea)

## -Workshop & Tutorial Chairs

Kazuya Sato (Saga Univ., Japan)

Kyungsik Yi (Seoul National Univ., Korea)

## -Publicity Co-Chairs

Ikuro Mizumoto (Kumamoto Univ., Japan)

Makoto Kumon (Kumamoto Univ., Japan)

Hyun Seok Yang (Yonsei Univ., Korea)

Kang-Hyun Jo (Univ. of Ulsan, Korea)

## -Local Arrangement Co-Chairs

Katsuhiro Inou (Kyushu Inst. Tech., Japan)

Makoto Iwamura (Fukuoka Univ., Japan)

## -Registration Chairs

Kazuhiro Muramatsu (Saga Univ., Japan)

Shunji Moromugi (Nagasaki Univ., Japan)

## -Technical Tour

Nobuhiro Okada (Kyushu Univ., Japan)

## -Secretariats

Akira Kimoto (Saga Univ., Japan)

Masami Namiki (SICE, Japan)

Hyun Chang Yang (ICROS, Korea)

## Contact Address

E-mail: [pc-core@francis.ee.uec.ac.jp](mailto:pc-core@francis.ee.uec.ac.jp)

The ICROS-SICE International Joint Conference 2009 (ICCAS-SICE 2009), an international joint conference on instrumentation, control and information technology, will be held at Fukuoka International Congress Center, Fukuoka City, Fukuoka, Japan on August 18-21, 2009. The conference covers a wide range of fields from measurement and control to system analysis and design, from theory to application and from software to hardware. Newly developed interdisciplinary ideas and concepts transferable from one field to another are especially welcome. All the submitted papers must be written and presented in English. Organized Sessions are welcome. Topics of the conference will cover but is not limited to:

### ■ Measurement

- ◆ Sensors and Transducers
- ◆ Signal and/or Image Processing
- ◆ Opto-Electronic Measurement
- ◆ Remote Sensing, ◆ Temperature Measurement
- ◆ Mass and Force Measurement
- ◆ Ultra-High Precision Measurement
- ◆ Analytical Measurement, ◆ Networked Sensor System
- ◆ Standardization of Measurement
- ◆ Flow Measurement and Control
- ◆ Sensor Fusion and Soft Sensor

### ■ Control

- ◆ Multivariable Control, ◆ Nonlinear Control
- ◆ Robust Control, ◆ Adaption and Learning
- ◆ Computer Aided Control Design
- ◆ Modeling, System Identification and Estimation
- ◆ Process Control, ◆ Mechanical Systems Control
- ◆ Guidance and Flight Control, ◆ Optimization
- ◆ Power Systems Control, ◆ Network and Control
- ◆ Vehicle, Formation and Engine-Powertrain
- ◆ Control for Life Science
- ◆ Multi-Resolution Dynamic System
- ◆ Model-Based Control System Developments

### ■ System and Information

- ◆ Systems Theory and Engineering
- ◆ Biological and Physiological Engineering
- ◆ Intelligent Systems, ◆ Discrete Event Systems
- ◆ Neural Networks and Computational Intelligence

### ◆ Autonomous Decentralized Systems

- ◆ Biological and Physiological Engineering
- ◆ Neural Networks and Computational Intelligence
- ◆ Man-Machine Systems, ◆ Fuzzy Systems

### ■ System Integration

- ◆ Robotics and Mechatronics Systems
- ◆ Automation Technology, ◆ Rescue Systems
- ◆ Medical and Welfare Systems, ◆ Universal Design
- ◆ Assistive Technology, ◆ Co-creation Systems
- ◆ Network and Virtual Reality Systems
- ◆ Interaction and Intelligence, ◆ Robot Therapy
- ◆ Safety, Environment and Eco-Systems
- ◆ Agricultural and Bio-Systems, ◆ Artificial Life
- ◆ Robot Technology (RT) System and Integration
- ◆ Soft Materials and Applications
- ◆ Haptics, ◆ Motion Media

### ■ Industrial Applications

- ◆ Process Automation, ◆ Factory Automation
- ◆ Laboratory Automation, ◆ Manufacturing Systems
- ◆ Industrial Automation Systems
- ◆ Information Management Systems
- ◆ SCADA and Network Systems
- ◆ Transportation Systems, ◆ Industrial Network Systems
- ◆ Micro and Nano Devices, ◆ Components and Devices

### ■ Emerging Technologies and Interdisciplinary Studies

- ◆ Life Science, ◆ Embedded System

### ■ Others

## Location and Venue

The conference activities will all be taking place in Fukuoka International Congress Center, Fukuoka City, Fukuoka, Japan. Fukuoka City is located in the northeast part of Kyushu, 50 minutes by airplane from Busan, 1 hour and 15 minutes by airplane from Seoul, 1 hour and 40 minutes by airplane from Tokyo, 1 hour and 15 minutes by airplane from Osaka, and is the prefectural capital of Fukuoka.

## Important Dates

**February 23, 2009** (Deadline for Proposal of Organized Sessions has been extended)

**February 9, 2009**: Proposal of Organized Sessions

**February 23, 2009**: Submission of Extended Abstracts for Regular Papers

**April 17, 2009**: Proposal of Workshop and Tutorials

**April 24, 2009**: Notification of Paper Acceptance

**May 15, 2009**: Submission of Final Camera-ready Papers

## Regular Paper Submission

Authors are invited to submit an extended abstract on 2 pages of A4, 800-1000 words in English. All extended abstracts must be submitted electronically through the ICCAS-SICE 2009 homepage: <http://www.sice.or.jp/ICCAS-SICE2009/> or contact the program committee. It is recommended that your draft paper includes **paper title**, **names** of all authors, **affiliations**, **postal mails**, **email addresses** and phone/fax numbers. Detailed submission instructions with requirement will be posted on the above homepage. All papers accepted by and presented in ICCAS-SICE 2009 will be indexed by **EI** and included in **IEEE Xplore** 

**Organized by** The Society of Instrument and Control Engineers (SICE), Japan, The Institute of Control, Robotics and Systems (ICROS), Korea

**Supported by** Fukuoka City

**Technically Co-Sponsored by** IEEE Industrial Electronics Society, IEEE Robotics and Automation Society, IEEE Control Systems Society, IEEE Systems, Man & Cybernetics Society, The Instrumentation, Systems, and Automation Society (ISA)

**In association with** Asian Control Association (ACA), China Instrument and Control Society (CIS), Chinese Association of Automation (CAA), Chinese Automatic Control Society (CACS), International Measurement Confederation (IMEKO), IEEE Japan Council, IFAC NMO-Japan, Organizing Committee of International Symposium on Artificial Life and Robotics (AROB)

## Organized Session Submission

The goal of organized sessions is to provide focused discussions on a new topic or innovative applications of a new approach. Proposals for organized sessions should be submitted by **February 9, 2009** to Organized Sessions Co-Chairs below. Each session consists of five or six papers, which will be reviewed via the normal review process. The proposal should be submitted by the session organizer electronically, and include a brief statement of the focus of the session, together with the extended abstracts of individual papers submitted. Submitting instructions will be posted on the ICCAS-SICE2009 homepage.

Prof. Tetsuro Kirimoto (Univ. of Electro-Communications, Japan)  
Dr. Tetsuo Kotoku (AIST, Japan)  
Prof. Toshiyuki Ohtsuka (Osaka Univ., Japan)

Phone: +81-42-443-5175  
Fax: +81-298-61-5971  
Phone: +81-6-6850-6355

E-mail: kirimoto@ee.uec.ac.jp  
E-mail: t.kotoku@aist.go.jp  
E-mail: ohtsuka@sys.es.osaka-u.ac.jp

## Workshops and Tutorials

### Requirements for Proposals

Proposals for workshops or tutorials that address the technical topics related to control, automation, and systems in general are welcome. We encourage such programs that will attract industrial members, and programs with highly anticipated level of interest, impact, creativity and technical background of presenters.

### Submission

Proposals following above must arrive at the address below through e-mail. Submitting instructions will be posted on the ICCAS-SICE2009 homepage.

Prof. Kazuya Sato (Saga Univ., Japan)  
Prof. Kyongsu Yi (Seoul National Univ., Korea)

Phone: +81-952-28-8626  
Phone: +82-2-880-1941

E-mail: sato@me.saga-u.ac.jp  
E-mail: kyi@snu.ac.kr

## International Program Committee

### Program Co-Chairs

Kazushi Nakano (Univ. of Electro-Communications, Japan)  
Kenji Sugimoto (Nara Institute of Science and Technology, Japan)  
Chung Choo Chung (Hanyang Univ., Korea)

### Program Vice-Chairs

Takami Matsuo (Oita Univ., Japan)  
Tetsuo Shiotsuki (Tokyo Denki Univ., Japan)  
Noboru Sakamoto (Nagoya Univ., Japan)

### Organized Session Co-Chairs

Tetsuro Kirimoto (Univ. of Electro-Communications, Japan) <Head>  
Toshiyuki Ohtsuka (Osaka Univ., Japan)  
Tetsuo Kotoku (AIST, Japan)  
Daisuke Chugo (Univ. of Electro-Communications, Japan)  
Qi-Xin Cao (Shanghai Jiao Tong Univ., China)  
Klaus Schilling (Univ. of Wuerzburg, Germany)  
Richard Voyles (Univ. of Denver, USA)  
Danwei Wang (Nat'l Univ. of Singapore, Singapore)

### Award Co-Chairs

Hiroyuki Kajiwara (Kyushu Univ., Japan)  
Jae Won Choi (Pusan Natl. Univ., Korea)  
Kohji Higuchi (Univ. Of Electro-Communications, Japan)  
Hajime Kimura (Kyushu Univ., Japan)  
Kentaro Hirata (NAIST, Japan)

### Electronic Submission Vice-Chairs

Kazunori Sakurama (Univ. of Electro-Communications, Japan)  
Kiminao Kogiso (NAIST, Japan), Akira Nakashima (Nagoya Univ.)

### Track Chairs

-Measurement  
Tadashi Ito (Gunma Univ., Japan) <Head>

Masaaki Ueki (AIST, Japan)  
Satoshi Honda (Keio Univ., Japan)

### -Control

Hitoshi Katayama (Shizuoka Univ., Japan)  
Toru Namerikawa (Kanazawa Univ., Japan)  
Mitsuo Hirata (Utsunomiya Univ., Japan)  
Shiro Masuda (Tokyo Metropolitan Univ., Japan) <Head>  
Tetsuya Tabaru (Yamatake Corp., Japan)

### -System and Information

Hirohiko Mori (Musashi Inst. Tech., Japan)  
Tatsuya Suzuki (Nagoya Univ., Japan)

### -System Integration

Noriyuki Kawarasaki (Kanagawa Inst. Tech., Japan) <Head>  
Kazuo Kiguchi (Saga Univ., Japan)  
Kenji Inoue (Yamagata Univ., Japan)  
Dairoku Sekiguchi (ViewPLUS, Japan)

### -Industrial Applications

Toshiharu Kagawa (Tokyo Inst. Tech., Japan)

### Regional Program Chairs

Bao-Liang Lu (Shanghai Jiao Tong Univ., China)  
Dawei Gu (Univ. of Leicester, UK)  
Guangfu Ma (Harbin Inst. of Tech., China)  
Amitava Chatterjee (Jadavpur Univ., India)  
Krzysztof R. Kozlowski (Poznan Univ. of Technology, Poland)  
Daniele Nardi (Sapienza Universita di Rome, Italy)  
Tetsuya Iwasaki (Univ. of Virginia, USA)  
Xiang Cheng (Nat'l Univ. of Singapore, Singapore)  
David Banerdpongchai (Chulalongkorn Univ., Thailand)  
Martin Buss (Munich Univ. of Technology, Germany)

## International Advisory Board

Xiren Cao (Hong Kong Univ. of Sci. & Tech., China)  
Han Fu Chen (Chinese Academy of Sciences, China)  
Doug Young Joo (KSIA, Korea)  
Kraiwood Kittrikomol (President of KMUTT, Thailand)  
Myong Sam Ko (Seoul Nat'l Univ., Korea)  
Hyun-Ku Lee (Seoul Nat'l Univ., Korea)  
Ju-Jang Lee (KAIST, Korea)  
Man Hyung Lee (Pusan Nat'l Univ., Korea)  
Tong Heng Lee (Nat'l Univ. of Singapore, Singapore)

Shugen Ma (Ritsumeikan Univ., Japan)  
Iven Mareel (The Univ. of Melbourne, Australia)  
Boo Hee Nam (Kangwon Nat'l Univ., Korea)  
Chongkuk Park (Kyung Hee Univ., Korea)  
Nguyen Ngoc San (Posts & TIT, Vietnam)  
Akira Sano (Keio Univ., Japan)  
Kitti Tiraseeth (President of KMITL, Thailand)  
Kenko Uchida (Waseda University, Japan)  
Ljubo Vlacic (Griffith Univ., Australia)

Sang Chul Won (POSTECH, Korea)  
Kwang Bang Woo (Yonsei Univ., Korea)  
Yugeng Xi (Shanghai Jiao Tong Univ., China)  
Youngil Youm (POSTECH, Korea)  
Hui Peng (Central South Univ., China)  
Yuan Kui (Chinese Academy of Sciences, China)

## International Program Committee Members (to be added)

Junghwan Ahn (Pusan National Univ., Korea)  
Kyoung Kwan Ahn (University of Ulsan, Korea)  
Kazuya Asano (JFE R&D Corp., Japan)  
Hyochong Bang (KAIST, Korea)  
Kwang-Suck Boo (Inje University, Korea)  
Byung-Wook Choi (KITECH, Korea)  
Jin Young Choi (Seoul National Univ., Korea)  
Hyeungsik Choi (Korea Maritime Univ., Korea)  
Hyout Ryool Choi (Sungkyunkwan Univ., Korea)  
Kyung Hyeon Choi (Cheju National Univ., Korea)  
Seung-Gap Choi (POSCON Corp., Korea)  
Kil To Chong (Chonbuk National University, Korea)  
Myung Jin Chung (KAIST, Korea)  
Wan Kyun Chung (POSTECH, Korea)  
Won Jee Chung (Changwon National Univ., Korea)  
Junping Du (Beijing Univ. of Posts & Tele., China)  
Guang-Ren Duan (Harbin Inst. Tech., China)  
Shuzhi Sam Ge (National Univ. of Singapore, Singapore)  
Da-Wei Gu (Univ. of Leicester, U.K.)  
Myungchul Han (Pusan National Univ., Korea)  
Sung-Hyun Han (Kyungnam Univ., Korea)  
Woon-Chul Ham (Chonbuk National Univ., Korea)  
Vincent Hayward (McGill Univ., Canada)  
Weng Khuen Ho (Nat'l Univ. of Singapore, Singapore)  
Jie Huang (Chinese Univ. of Hong Kong, China)  
Takayuki Inaba (Univ. of Electro-Communications, Japan)  
Doyoung Jeon (Sogang University, Korea)  
Yingmin Jia (Beihang University, China)  
Young Hoon Joo (Kunsan Univ., Korea)  
Chul Goo Kang (Kon Kuk Univ., Korea)  
Hoan Kang (Chung-Ang Univ., Korea)  
Manabu Kano (Kyoto Univ., Japan)  
Eun Tae Kim (Yonsei Univ., Korea)  
Jin-Oh Kim (Kwangwoon Univ., Korea)  
Jong Hyoeng Kim (SNUT, Korea)

Jongshik Kim (Pusan National Univ., Korea)  
Young-Choi Kim (Chungbuk National Univ., Korea)  
Won-jong Kim (Texas A&M Univ., USA)  
Dong-Soo Kwon (KAIST, Korea)  
Sung Ha Kwon (Changwon National Univ., Korea)  
Hoon Kang (Chung-Ang Univ., Korea)  
Kisang Hong (Pohang Univ. of Sci. & Tech., Korea)  
Suk-Kyo Hong (Ajou Univ., Korea)  
I-Cheol Hwang (Dong-Eui Univ., Korea)  
Uk-Youl Huh (Inha Univ., Korea)  
Seul Jung (Chungnam National Univ., Korea)  
Byung Ju Lee (Hanyang Univ., Korea)  
Doo Yong Lee (KAIST, Korea)  
Ho Gil Lee (KITECH, Korea)  
Jae Won Lee (Yeungnam University, Korea)  
Jang Myung Lee (Pusan National U., Korea)  
Jietae Lee (Kyungpook National Univ., Korea)  
Kwang Soon Lee (Sogang Univ., Korea)  
Hee-Hyo Lee (Waseda Univ., Japan)  
Min Cheol Lee (Pusan National Univ., Korea)  
Soon Geul Lee (Kyunghee Univ., Korea)  
Suck Gyoo Lee (Yeungnam Univ., Korea)  
Feng-Li Lian (Nat'l Taiwan Univ., Taiwan)  
Myo-Taeg Lim (Korea Univ., Korea)  
Kang-Zhi Liu (Chiba Univ., Japan)  
Zhi-Wei Luo (Kobe Univ., Japan)  
Joon Lyou (Chungnam National Univ., Korea)  
Guangfu Ma (Harbin Inst. Of Tech., China)  
Seungbin Moon (Sejong University, Korea)  
Eitaku Nobuyama (Kyushu Inst. Tech., Japan)  
Chan Gook Park (Seoul National Univ., Korea)  
Jin Bae Park (Yonsei Univ., Korea)  
Jong Hyeon Park (Hanyang Univ., Korea)  
Ki-Hwan Park (K-GIST, Korea)  
Kyoung Taik Park (KIMM, Korea)

Myeongkwan Park (Pusan National Univ., Korea)  
Poo Gyeon Park (POSTECH, Korea)  
Young Jin Park (KAIST, Korea)  
Sun Won Park (KAIST, Korea)  
Se-Young Oh (POSTECH, Korea)  
Je-Ha Ryu (GIST, Korea)  
Nguyen Ngoc San (Posts & Tele. Inst., Vietnam)  
Kazushi Sanada (Yokohama National Univ., Japan)  
Tielong Shen (Sophia Univ., Japan)  
Duk-Sun Shim (Chung-Ang Univ., Korea)  
Hyungbo Shim (Seoul National Univ., Korea)  
Kwee-Bo Sim (Chung-Ang Univ., Korea)  
Jae-Bok Song (Korea Univ., Korea)  
Li Hong Suh (Hanyang Univ., Korea)  
Min-Jea Tahk (KAIST, Korea)  
Kiyotsugu Takaba (Kyoto Univ., Japan)  
Anusorn Tommueanwai (NIMT, Thailand)  
Xu-Yan Tu (Univ. of Science and Tech. Beijing, China)  
Danwei Wang (Nanyang Tech. Univ., Singapore)  
Long Wang (Peking University, China)  
Sang Chul Won (POSTECH, Korea)  
Shigeru Yamamoto (Kanazawa Univ., Japan)  
Hai Won Yang (Hanyang Univ.)  
Zi-Jiang Yang (Kyushu Univ., Japan)  
Byung-Ju Yi (Hanyang Univ., Korea)  
En Sup Yoon (Seoul National Univ., Korea)  
Tae-Woong Yoon (Korea Univ., Korea)  
Kee-Hu Yu (Chonbuk National Univ., Korea)  
Sun Kook Yoo (Yonsei Univ., Korea)  
Hongbin Zha (Peking Univ., China)  
Guisheng Zhai (Osaka Prefec. Univ., Japan)  
Tao Zhang (Tsinghua Univ., China)  
Wang Zhiliang (Univ. of Sci. & Tech. Beijing, China)