

# SICE International Symposium on Control Systems 2020

## Program at a Glance

### Tuesday March 3, 2020 (Day 1)

Schedule	Session (Room E (K302))
10:30-12:10	Control Applications
12:10-13:10	<i>Lunch Break</i>
13:10-14:00	ISCS Invited Talk (Keyaki Hall)
14:20-16:00	Control and Modeling
16:20-17:20	ISCS Tutorial

### Wednesday March 4, 2020 (Day 2)

Schedule	Session (Room E (K302))
9:30-10:10	MSCS Plenaries: Kimura-Award Commemorative Lecture (Keyaki Hall)
10:30-12:30	Multi-agent Systems
12:30-13:30	<i>Lunch Break</i>
13:30-15:30	Networked Control Systems
15:50-16:40	MSCS Plenary Talk (Keyaki Hall)
19:00-21:00	<i>Banquet</i>

### Thursday March 5, 2020 (Day 3)

Schedule	Session (Room E (K302))
10:30-12:10	Process Control
12:10-13:10	<i>Lunch Break</i>
13:10-15:10	Optimal Control

# SICE International Symposium on Control Systems 2020

## Technical Program (Day 1)

**Tuesday March 3, 2020**

### Control Applications

Chair: Takashi Shimomura (Osaka Prefecture University, Japan)

10:30-12:10, Room E (K302)

Schedule	No.	Title	Authors
10:30-10:50	42	Wholistic Simulation of an All-Electric Refrigerated Delivery Vehicle	○Agnes Poks (Vienna University of Technology, Austria), Elisabeth Luchini (Vienna University of Technology, Austria), Filip Kitanoski (PRODUCTBLOKS GmbH, Austria), Martin Kozek (Vienna University of Technology, Austria)
10:50-11:10	12	Motion Control of the Autonomous Mobile Robot Considering Personal Spaces of Pedestrians	○Bin Zhang (Kanagawa University, Japan), Kouki Shimazu (Kanagawa University, Japan), Masahide Kaneko (The University of Electro-Communications, Japan), Hun-ok Lim (Kanagawa University, Japan)
11:10-11:30	44	Design and Experimental Verification of a Regenerative Brake with a Spiral Spring and Planetary Gears	○Yuto Arai (Toyohashi University of Technology, Japan), Akihiro Takeda (Toyohashi University of Technology, Japan), Takahiro Sakuraba (Japan Water Agency, Japan), Tatsuhiko Sakaguchi (Toyohashi University of Technology, Japan), Naoki Uchiyama (Toyohashi University of Technology, Japan)
11:30-11:50	28	PD Gain Setting on Spacecraft Attitude Control Not to Cause Oscillatory Responses	○Hayate Ogura (Osaka Prefecture University, Japan), Sayaka Kanata (Osaka Prefecture University, Japan), Takashi Shimomura (Osaka Prefecture University, Japan)
11:50-12:10	43	A Numerical Result on the Faster MPC of Hydraulic Arms	Yuki Nishimura (Shinshu University, Japan), ○Satoru Sakai (Shinshu University, Japan), Yuichi Ikeda (Shonan Institute of Technology, Japan)

### ISCS Invited Talk

Chair: Takeshi Hatanaka (Osaka University, Japan)

13:10-14:00, Keyaki Hall

**Na Li** (Harvard University, USA)

**Title: Distributed Decision Making in Network Systems: Algorithms, Fundamental Limits, and Applications**

### Control and Modeling

Chair: Satoru Sakai (Shinshu University, Japan)

14:20-16:00, Room E (K302)

Schedule	No.	Title	Authors
14:20-14:40	22	On Setpoint Tracking and Disturbance Rejection of Event-Triggered PI Control	○Takuya Iwaki (KTH Royal Institute of Technology, Sweden), Karl H. Johansson (KTH Royal Institute of Technology, Sweden)
14:40-15:00	7	Modified QS-ARUKF with Maximum Correntropy Criterion for Estimating State of Mobile Robot	○Keigo Miyama (Nihon University, Japan), Kenji Uchiyama (Nihon University, Japan), Kai Masuda (Nihon University, Japan)
15:00-15:20	8	Neural Network Control Trained by Genetic Algorithm for an Aircraft Landing Gear Equipped with a Magnetorheological Damper	○Quoc Viet Luong (Korea Aerospace University, Korea), Dae-Sung Jang (Korea Aerospace University, Korea), Jai-Hyuk Hwang (Korea Aerospace University, Korea)

15:20-15:40	23	Simulation-Based Parameter Identification Framework for the Calibration of Rigid Body Simulation Models	oPoommitol Chaicherdkiat (King Mongkut's University of Technology North Bangkok, Thailand), Tobias Osterloh (RWTH Aachen University, Germany), Chayakorn Netramai (King Mongkut's University of Technology North Bangkok, Thailand), Jürgen Roßmann (RWTH Aachen University, Germany)
15:40-16:00	46	Clustering of Opinions in Social Networks via Random Group Gossiping with Bounded Confidence	oEmerico Aguilar (Osaka University, Japan), Yasumasa Fujisaki (Osaka University, Japan)

## ISCS Tutorial

Chair: Toru Namerikawa (Keio University, Japan)

16:20-17:20, Room E (K302)

**Siddharth Suryanarayanan** (Colorado State University, USA)

**Title: ToU, or Not ToU, That is the Question: Maximizing Wind Energy Usage in Regions with Electric Vehicle Fleets**

# SICE International Symposium on Control Systems 2020

## Technical Program (Day 2)

**Wednesday March 4, 2020**

### MSCS Plenaries: **Kimura-Award Commemorative Lecture**

9:30-10:10, Keyaki Hall

**Yoshio Ebihara** (Kyushu University, Japan)

**Title: Analysis and Synthesis of Positive Systems Using Convex Optimization**

### Multi-agent Systems

Chair: Masaki Inoue (Keio University, Japan)

10:30-12:30, Room E (K302)

Schedule	No.	Title	Authors
10:30-10:50	33	A Stopping Rule for Multi-Agent Consensus with Bounded Noise in Measurements	○Kenta Hanada (Osaka University, Japan), Takayuki Wada (Osaka University, Japan), Izumi Masubuchi (Kobe University, Japan), Toru Asai (Nagoya University, Japan), Yasumasa Fujisaki (Osaka University, Japan)
10:50-11:10	27	Resilient Consensus against Mobile Malicious Agents	○Yuan Wang (Tokyo Institute of Technology, Japan), Hideaki Ishii (Tokyo Institute of Technology, Japan), Francois Bonnet (Tokyo Institute of Technology, Japan), Xavier Defago (Tokyo Institute of Technology, Japan)
11:10-11:30	41	Continuous-Time Consensus Optimization via Fully Distributed Dual Decomposition	○Ryosuke Adachi (Yamaguchi University, Japan), Yuji Wakasa (Yamaguchi University, Japan)
11:30-11:50	21	Dynamic Quantized Consensus of General Linear Multi-Agent Systems under Denial-Of-Service Attacks	○Shuai Feng (Tokyo Institute of Technology, Japan), Hideaki Ishii (Tokyo Institute of Technology, Japan)
11:50-12:10	32	Second-Order Multi-Agent Consensus via Dynamic Displacement Interaction	○Elisa Capello (Politecnico di Torino and CNR-IEIIT, Italy), Yasumasa Fujisaki (Osaka University, Japan)
12:10-12:30	31	Dynamic Formation Control Design Based on Edge Dynamics for Peer-To-Peer Wireless Energy Trading of Vehicle Platoons	○Dinh Hoa Nguyen (Kyushu University, Japan)

### Networked Control Systems

Chair: Takayuki Wada (Osaka University, Japan)

13:30-15:30, Room E (K302)

Schedule	No.	Title	Authors
13:30-13:50	15	Safe Cooperative Control of Human-Robotic Network Teaming with Control Barrier Function	○Aditya Wildan Farras (Tokyo Institute of Technology, Japan), Junya Yamauchi (Tokyo Institute of Technology, Japan), Takeshi Hatanaka (Osaka University, Japan), Masayuki Fujita (Tokyo Institute of Technology, Japan)
13:50-14:10	40	Two-Player Resilient Graph Games for State-Dependent Jamming Attacks Analysis on Multi-Agent Systems	○Yurid Nugraha (Tokyo Institute of Technology, Japan), Ahmet Cetinkaya (National Institute of Informatics, Japan), Tomohisa Hayakawa (Tokyo Institute of Technology, Japan), Hideaki Ishii (Tokyo Institute of Technology, Japan), Quanyan Zhu (New York University, USA)
14:10-14:30	34	Synchronization of Coupled Measurements: Euler Lagrange Systems	○Pallavi Sinha (Indian Institute of Technology, India), Rihab Abdul Razak (Indian Institute of Technology, India), Srikant Sukumar (Indian Institute of Technology, India)
14:30-14:50	14	Finite-Time Input to State Stability of Discontinuous Dynamical Systems: A Case Study of Networked Euler-Lagrange Systems	○Abbas Tariverdi (Amirkabir University of Technology, Iran), Heidar Ali Talebi (University of Western Ontario, Canada), Mahmood Shabankhah (University of Tehran, Iran)
14:50-15:10	20	Resilient Consensus with Distributed Detection via Two-Hop	○Liwei Yuan (Tokyo Institute of Technology, Japan),

		Communication	Hideaki Ishii (Tokyo Institute of Technology, Japan)
15:10-15:30	3	Decentralized Adaptation-Free Robust Tracking and Model Following of Uncertain Large Scale Interconnected Time-Delay Systems	○Rongxiang Ge (Prefectural University of Hiroshima, Japan), Hansheng Wu (Prefectural University of Hiroshima, Japan)

## MSCS Plenary Talk

15:50-16:40, Keyaki Hall

**Yutaka Yamamoto** (Professor Emeritus of Kyoto University, Japan)

**Title: YY Filter - A New Challenge Against Shannon**

# SICE International Symposium on Control Systems 2020

## Technical Program (Day 3)

**Thursday March 5, 2020**

### Process Control

Chair: Shin Wakitani (Hiroshima University, Japan)

10:30-12:10, Room E (K302)

Schedule	No.	Title	Authors
10:30-10:50	17	Design of Composite Sliding Mode Controller for Large-Scale Processes	◦B. B. Musmade (Savitribai Phule Pune University, India), R. K. Munje (K. K. W. Institute of Engineering Education & Research, India), B. M. Patre (S. G. G. S. Institute of Engineering and Technology, India)
10:50-11:10	19	Robust Regulation of Time-Delay Processes Using Sliding Mode Control	M. G. Ghogare (Savitribai Phule Pune University, India), ◦B. B. Musmade (Savitribai Phule Pune University, India), S. L. Patil (Savitribai Phule Pune University, India), B. M. Patre (S. G. G. S. Institute of Engineering and Technology, India)
11:10-11:30	30	Design of a Novel Adaptive PID Controller Based on Actor-Critic Learning for Nonlinear Systems	◦Zhe Guan (Hiroshima University, Japan), Toru Yamamoto (Hiroshima University, Japan)
11:30-11:50	37	Data-Driven Communication Cost-Sensitive Distributed Monitoring for Industrial Plant-Wide Processes	◦Qingchao Jiang (East China University of Science and Technology, China), Manabu Kano (Kyoto University, Japan)
11:50-12:10	24	Airflow Direction Control of Air Conditioners Using Deep Reinforcement Learning	◦Yuiko Sakuma (Keio University, Japan), Hiroaki Nishi (Keio University, Japan)

### Optimal Control

Chair: Hidenori Shingin (Yamaguchi University, Japan)

13:10-15:10, Room E (K302)

Schedule	No.	Title	Authors
13:10-13:30	35	Global Trajectory Optimization Framework via Multi-Fidelity Approach Supported by Machine Learning and Primer Vector Theory for Advanced Space Mission Design	◦Satoshi Ueda (JAXA, Japan), Hideaki Ogawa (Kyushu University, Japan)
13:30-13:50	29	Efficient and Life Preserving Power Tracking Control of a Proton Exchange Membrane Fuel Cell Using Model Predictive Control	◦Martin Vrlc (Vienna University of Technology, Austria), Daniel Ritzberger (Vienna University of Technology, Austria), Stefan M. Jakubek (Vienna University of Technology, Austria)
13:50-14:10	39	Model Predictive Temperature Control for a Food Transporter with Door-Openings	◦Elisabeth Luchini (Vienna University of Technology, Austria), Agnes Poks (Vienna University of Technology, Austria), Dominik Radler (PRODUCTBLOKS GmbH, Austria), Martin Kozek (Vienna University of Technology, Austria)
14:10-14:30	6	Optimization of Online Double Exponentially Weighted Moving Average Controller in a Multiple Inputs Single Output System	Weichin Chien (Sun Innovation Co., Ltd., Taiwan), ◦Lingyen Yeh (Sun Innovation Co., Ltd., Taiwan)
14:30-14:50	5	Simply Robust Control Strategy Based on Model Predictive Control	◦Kai Masuda (Nihon University, Japan), Kenji Uchiyama (Nihon University, Japan)
14:50-15:10	45	Multi-Target Rendezvous Optimization for Active Debris Removal via Multi-Fidelity Approach	◦Shuvayan Brahmachary (Kyushu University, Japan), Atsuki Tokuda (Kyushu University, Japan), Hideaki Ogawa (Kyushu University, Japan), Jun Bang (KAIST, Republic of Korea), Jaemyung Ahn (KAIST, Republic of Korea), Satoshi Ueda (JAXA, Japan)