

IEEE Industrial Electronics Society

www.ieee-ies.org



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IES Constitution

- The IES strives for the advancement of the theory and practice of electrical engineering and of the allied arts and sciences, and the maintenance of a high professional standing among its members
- The Field of Interest confined to the theory and applications of electronics, controls, communications, instrumentation and computational intelligence to industrial and manufacturing systems and processes

Technical Activities

1. Building Automation, Control and Management
2. Cloud and Wireless Systems for Industrial Applications
3. Control, Robotics and Mechatronics
4. Data Driven Control and Monitoring
5. Education in Engineering and Industrial Technologies
6. Electrical Machines
7. Electronic Systems on Chip (ESOC)
8. Energy Storage
9. Factory Automation
10. Human Factors
11. Industrial Agents
12. Industrial Informatics
13. Industrial Cyber-Physical Systems
14. MEMS & Nanotechnologies
15. Motion Control
16. Network-based Control Systems and Applications
17. Power Electronics
18. Renewable Energy Systems
19. Resilience and Security for Industrial systems
20. Sensors and Actuators
21. Smart Grids
22. Standards
23. Transportation Electrification

Membership Activities

- The Industrial Electronics Society (IES) was established in February 1951.
- As one of the oldest IEEE societies it has been the engine propelling numerous technological advances and innovations.
- IES is very attractive to professionals; its membership has constantly increased since 2013 at an annual rate of 3%-5%.
- Very versatile technological society, now with more than 7,000 members in over 100 countries worldwide.
- Truly international, with three quarters of its members outside USA, IES keeps abreast of innovations and opportunities in the ever-expanding field of Industrial Electronics.



Membership Activities - offers

- Distinguished Lecturer Program <http://vps.ieee-ies.org/members/lecturers>
 - 18 Lecturers available to IES Chapters
- Student Activities <http://vps.ieee-ies.org/iestudents.shtml>
 - 70 student paper travel awards (up to \$2,000 each) to participate in IES major conferences each year
 - Student Forum, every year within ISIE and/or IECON
 - Two Student Forum paper travel awards (up to \$750 each)
- Chapters: 60 chapters and 8 student chapters worldwide
 - Best Chapter Award & Best Student Branch Chapter Award
 - Support for Local Chapter's Activities (SLCA) 5 x \$1,000
 - Chapter Chairs Meeting held every 2-3 years at IECON.



Membership Activities - Chapters

- IES is very attractive to professionals; its membership has constantly increased since 2013 at an annual rate 3%-5% .
- The number of Chapters has recently increased, reaching now 60:
 - *Europe, Africa, Middle East, Russia: 28*
 - *Asia, Australia: 14*
 - *North America: 12*
 - *South America: 6*
- Typical Chapter activities: technical events/seminars, host Distinguished Lecturer presentations, industry visits, life skills events /younger member activities, specialist symposia.
- To form a new Chapter, or for other membership initiatives, contact:
 - VP Membership activities, Prof. Yousef Ibrahim (vp-membership@ieee-ies.org)
 - IES Membership Champion, Dr. Kim-Fung Tsang (ee330015@cityu.edu.hk)
- Guidance for Chapter formation:
http://www.ieee.org/societies_communities/geo_activities/chapters/creating_a_chapter.html

IES Publications

IES sponsors/cosponsors several peer-reviewed journals ranked at the top level in electrical and electronic engineering areas

- *IEEE Industrial Electronics Magazine*
 - 280 pages/year
- *IEEE Transactions on Industrial Electronics*
 - 8000 pages/year
- *IEEE Transactions on Industrial Informatics*
 - 4200 pages/year
- *IEEE/ASME Transactions on Mechatronics*
 - 2000 pages/year
- Several other journals on micromechanical systems, sensors, nanotechnology, image processing, sustainable energy and smart grid technologies

Impact Factors – 2018 JCR Report

IEEE Transactions on Industrial Electronics – **7.050**

IEEE Transactions on Industrial Informatics – **5.430**

IEEE Industrial Electronics Magazine – **10.429**

IEEE/ASME Transactions on Mechatronics – **3.936**

Journal of Microelectromechanical Systems – **2.475**

Electrical and Electronic Engineering (260 in total)

#**13** IEEE Transactions on Industrial Electronics

#**2** IEEE Industrial Electronics Magazine

#**38** IEEE/ASME Transactions on Mechatronics

Automation and Control (60 in total)

#**2** IEEE Transactions on Industrial Electronics

#**4** IEEE Transactions on Industrial Informatics

#**10** IEEE/ASME Transactions on Mechatronics

Instruments and Instrumentation (60 in total)

#**1** IEEE Transactions on Industrial Electronics

Computer Science (205 in total)

#**5** IEEE Transactions on Industrial Informatics



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IES Conferences

- Fully peer-reviewed content, indexed in IEEE Xplore, Conference Proceedings Citation Index – Science (CPCI-S) and EI Compendex
- 7 sponsored conferences cover the full spectrum of Society interests
- 5 sponsored focused workshops
- 4 co-sponsored conferences in robotics and energy conversion fields
- 20+ technically co-sponsored events
- Industry Forum
- Student & Young Professional Forum
- Event calendar at: <http://ieee-ies.org/conferences/>

IES Officers for 2019

President: Prof. Xinghuo Yu, *Australia*

President Elect: Prof. Terry Martin, *USA*

VP Technical Activities: Prof. Roberto Oboe, *Italy*

VP Conferences: Prof. Juan Jose Rodriguez-Andina, *Spain*

VP Workshops: Prof. Kiyoshi Onishi, *Japan*

VP Publications: Prof. Mariusz Malinowski, *Poland*

VP Membership: Prof. Yousef Ibrahim, *Australia*

VP Planning & Dev.: Prof. Makoto Iwasaki, *Japan*

Treasurer: Prof. Milos Manic, *USA*

Secretary: Prof. Kang-Hyun Jo, *Korea*

Junior Past President: Prof. Kamal Al-Haddad, *Canada*

Senior Past President: Prof. John Hung, *USA*

Collaborative Activities initiated between the IES and the IEEE Systems Council

ICPS2018, Saint Petersburg, Russia



ITMO UNIVERSITY

TECHNICAL SPONSOR



1st IEEE International Conference
on Industrial Cyber-Physical Systems (ICPS-2018)

Saint-Petersburg, RUSSIA, May 15-18, 2018



*Shiyan Hu (TC CPS)
Keynote Speaker*



ICPS2019, Taipei, Taiwan



Call For Participation

www.icps19.org

General Chair

Ren C. Luo
National Taiwan University, Taiwan

General Co-Chairs

Armando W. Colombo
Univ of Applied Sci Emden/Leer, Germany
Stamatis Kamouskos
SAP, Germany
Yang Shi
University of Victoria, Canada

IEEE International Conference on Industrial Cyber-Physical Systems (ICPS) is to provide a platform to exchange research and innovation results, lessons learned from industrial practices associated with new paradigms and technologies. ICPS 2019 is going to be the conference series presenting the state of the art and future perspectives of Industrial Cyber-Physical Systems. The industry experts, researchers, and academics share ideas and experiences surrounding frontier technologies, breakthrough and innovative solutions and applications. The world's industry, researchers and academia are cordially invited to participate in this exciting event and enjoy the wonderful city of Taipei.



Shiyan Hu (TC CPS)
TPC Co-Chair

ICPS2020, Tampere, Finland



June 9-12, 2020
Tampere, Finland

3rd IEEE International Conference on Industrial Cyber-Physical Systems
Towards the Future Sustainable Industrial Society
ICPS 2020



icps2020.fi



ICPS 2020
Industrial Cyber-Physical Systems

Topics within the scope of the conference:

ICPS Architectures: Industry Architectures, Industry Standards, RAMI 4.0, Industrial IoT.
ICPS Technologies: Core Technologies, Interoperability, Communication Networks, Connectivity OT/IT, Semantics, Control, Security, IoT/loS, Machine Learning, Autonomous Systems, Cloud-Fog Computing, Big/Smart Data, Security.
ICPS Engineering: Engineering Methods and Tools, Lifecycle Management, Integration, HMI, Safety, Engineering Systems of ICPS.
ICPS Applications: Smart Manufacturing, Robotics, Smart Cities, Energy / Smart Grid, Smart Living, Smart Framing, Mobility, Water Management, Mining, Oil & Gas, Intelligent Enterprise, Smart Transportation, Internet of Underwater Things, Smart Medical Systems.
ICPS Management and Ecosystem: Innovation Management, Innovation Ecosystems, Visions/Roadmaps, Industry Digitalization, Strategies & Markets, Entrepreneurship.
ICPS Education and Social Aspects: Digital Society, Education, Lifelong ICPS Learning, ICPS Curricula, Future of Work, Social Aspects, Sustainability, Machine Ethics.

For further information see:
icps2020.fi

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Shiyan Hu (TC CPS)
General Co-Chair



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Roadmapping

Engineering Systems of Cyber-Physical Systems (ESoCPS)

Proposal Overview

- **Aim:** Plan and carry out a Roadmapping activity focusing on the Engineering of Cyber-Physical Systems of Systems
- ▶ **Results:** A Strategic Research and Innovation Agenda (SRIA)
- ▶ **Content:**
 - Key Enabling Features (KEF)
 - Key Enabling Technologies (KET)
 - Roadmaps for KEF + KET
 - Built on existing SRIAs from different areas with focus on large-scale SoCPS Engineering
- ▶ **How:**
 - Coordinated **multi-society effort** (e.g. IES, Systems Council, ...)
 - Expert meetings (online/offline), step-wise yearly advances
- ▶ **When**
 - A three-five years collaborative activity
- ▶ **Administrative:**
 - Approval at IES AdCom in 2019.
 - Notification to the IEEE Systems Council AdCom in 2019
 - Kick-start in Q4 2019 [ongoing WiP]



Roadmapping

Engineering Systems of Cyber-Physical Systems (ESoCPS)

Planned Event: ICPS 2019 (Taipei)

- ▶ Expert Panel + Open Discussion
Opportunities and Challenges for ICPS
 - Identification of Key Challenges
 - Identification of Key Enabling Features (KEF)
 - Identification of Key Enabling Technologies (KET)
- ▶ Modus Operandi
 - 5 min positioning from key speakers
 - 30 min discussion
 - 20 min Open Floor discussion (incl. public interaction/position)
- ▶ After Event
 - Survey of KEF/KET etc.
 - Prioritization
 - Building Working Groups to analyze Roadmaps/SRIAs until Lisbon (IECON19)
 - Identifying other areas/domains not covered in Taipei and to be covered in a similar workshop to be done in Vancouver (ISIE19), Lisbon (IECON19), Tampere (ICPS20),

