

# IEEE Systems, Man, and Cybernetics Society

Rodney Roberts

SMC Representative for the Systems Council

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# SMC Officers

## **Society Presidents**

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# SMC Officers

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**Robert Woon**, Treasurer, [rpwoon@gmail.com](mailto:rpwoon@gmail.com)

# SMC Fields of Interest

Development of systems engineering technology including problem definition methods, modelling, and simulation, methods of system experimentation, human factors engineering, data and methods, systems design techniques and test and evaluation methods.

Integration of the theories of communication, control, cybernetics, stochastics, optimization, and system structure towards the formulation of a general theory of systems.

Application at hardware and software levels to the analysis and design of biological, ecological, socio-economic, social service, computer information, and operational man-machine systems.

# Technical Committees (TC)

*The TCs are the foundation of the SMC Society's technical activities and are an essential resource to increase SMC Society membership.*

*There are:*

*22 TCs in the System Science Technical Area (Total Membership 993)*

*12 TCs in the Human Machine Systems Technical Area (Total Membership 613)*

*22 TCs in the Cybernetics Technical Area (Total Membership 876)*

# Systems Science and Engineering Technical Committees (993)

<b>1. Bio-mechatronics and Bio-robotics Systems (40)</b>	Zhijun Li, C. L. Philip Chen, Okyay Kaynak, and Chenguang Yang
<b>2. Blockchain (35)</b>	Jun Zhang, Yong Yuan, Bill Buchanan, Qiang Tang, and Claire Vishik
<b>3. Conflict Resolution (30)</b>	Liping Fang and Keith W. Hipel
<b>4. Cyber-Physical Cloud Systems (30)</b>	Huaglorry Tianfield
<b>5. Discrete Event Systems (37)</b>	MuDer Jeng and Zhiwu Li
<b>6. Distributed Intelligent Systems (45)</b>	Vladimir Marik and Haibin Zhu
<b>7. Enterprise Information Systems (49) + Enterprise Architecture and Engineering (29)</b>	Li Xu and Ming Yu
<b>8. Grey Systems (71)</b>	Sifeng Liu, Robin Qiu, Kun-Li Wen, Jeffrey Forrest, Renkuan Guo, Yingjie Yang, and Ni-Bin Chang
<b>9. Homeland Security (46)</b>	Francesco Flammini, Justin Zhan, Qiudan Li, and Chris Yang
<b>10. Infrastructure Systems and Services (18)</b>	Margot P. C. Weijnen and Geert Deconinck
<b>11. Intelligent Green Production Systems (17)</b>	Hossam A. Gabbar
<b>12. Intelligent Learning in Control Systems (45)</b>	Ching-Chih Tsai, Kao-Shing Hwang, and Han-Xiong Li

# Systems Science and Engineering Technical Committees (993)

<b>13. Intelligent Power and Energy Systems (80)</b>	Loi Lei Lai and Kit Po Wong
<b>14. Intelligent Transportation Systems (32)</b>	Bing-Fei Wu, Jau-Woei Perng, and Yo-Ping Huang
<b>15. Logistics Informatics and Industrial Security Systems (77)</b>	Runtong Zhang, Menggang Li, Martin Dresner, and Zhenji Zhang
<b>16. Medical Mechatronics (97)</b>	Ming-Yih Lee, Chung-Hsien Kuo, and Yi-Hung Liu
<b>17. Model-Based Systems Engineering (55)</b>	Azad M. Madni, Joseph D'Ambrosio, Robert Minnichelli, and Ken Cureton
<b>18. Robotics and Intelligent Sensing (36)</b>	Saeid Nahavandi
<b>19. Service Systems and Organization (37)</b>	Jian Chen and Xiaoqiang Cai
<b>20. System of Systems (45)</b>	Mark A. Johnson, Mike Henshaw, and Ferat Sahin
<b>21. Systems Biology (19)</b>	Luonan Chen
<b>22. Unmanned Maritime Systems Engineering (23)</b>	Ferial El-Hawary

# Human-Machine Systems Technical Committees (613)

<b>1. Biometrics and Applications</b>	Robert Zhang, Yong Xu
<b>2. Brain Machine Interfaces</b>	Ricardo Chavarriaga, Iñaki Iturrate, An Kai Keng, Heung-Il Suk
<b>3. Cognitive Computing</b>	Yicong Zhou, Yuan Yuan, Weifeng Liu, Bin Hu
<b>4. Companion Technology</b>	Susanne Biundo, Stephan Reuter, Andreas Wendemuth, Steffen Walter
<b>5. Computer Supported Cognitive Work in Design</b>	Jano Moreira de Souza, Amy Trappey, Luo Junzhou, Jean Paul Barthes, Weiming Shen
<b>6. Environmental Sensing, Networking and Decision Making</b>	Mingcong Den, Hongnian Yu, Ni-Bin Chang, Mengchu Zhou
<b>7. Human Centered Transportation Systems</b>	Takeshi Imamura, Koji Murai, Shubhangi Giripunje
<b>8. Human Perception in Multimedia Computing</b>	Guillaume Lavoue, Tao Wang
<b>9. Information Systems for Design and Marketing</b>	Katsutoshi Yada, Yi Zuo
<b>10. Interactive and Wearable Computing and Devices</b>	Peter Liu, Giancarlo Fortino, Mehmet Rasit Yuce, Dongyi Chen
<b>11. Shared Control</b>	Makoto Itoh, Erwin R. Boer, Tricia L. Gibo
<b>12. Visual Analytics and Communication</b>	Weidong Huang, Yuhua Luo, Henry Duh



# Cybernetics Technical Committees (876)

<b>1. Awareness Computing (60)</b>	G. Chakraborty, T. Murata, Qiangfu Zhao, R. Kozma
<b>2. Big Data Computing (13)</b>	Václav Snášel, Ivan Zelinka, Michal Wozniak
<b>3. Computational Collective Intelligence (32)</b>	Ngoc Nguen
<b>4. Computational Cybernetics (129)</b>	Philip Chen, Witold Pedrycz, Imre Rudas
<b>5. Computational Intelligence (23)</b>	Xizhao Wang, Wing Yin Ng
<b>6. Computational Life Science (14)</b>	Michael R. Berthold, Hong Yan, Daniel Yeung
<b>7. Cybermatics for Cyber-enabled Worlds (34)</b>	Jianhua Ma, L. T. Young, J. Burgeois, H. Ning
<b>8. Cybernetics for Cyber-Physical Systems (42)</b>	Shiyan Hu, Albert Y. Zomaya
<b>9. Cybernetics for Intelligent Industrial Systems (40)</b>	Pavel Vrba, Amro M. Farid, Thomas Strasser
<b>10. Diagnostics &amp; Prognostics (19)</b>	Imad Makki, Matthew Franchek, Karolos Grigoriadis
<b>11. Evolving Intelligent Systems (26)</b>	Plamen Angelov
<b>12. Granular Computing (19)</b>	Shusaku Tsumoto, Tzung-Pei Hong, Leon Wang
<b>13. Information Assurance &amp; Intelligent Multimedia (28)</b>	Sos Agaian, Philip Chen, Aram Arakelyan
<b>14. Intelligent Internet Systems (52)</b>	John W. T. Lee, S.-M. Chen, T.-H. Tan, Yung-Fa Huang
<b>15. Intelligent Vehicular Control Systems (20)</b>	Jianbo Lu, Tim Gordon
<b>16. Knowledge Acquisition in Intelligent Systems (41)</b>	Stuart Rubin, Shu-Ching Chen
<b>17. Machine Learning (22)</b>	Daniel Yeung, Witold Pedrycz, Wing Yin Ng
<b>18. Medical Informatics (24)</b>	Yutaka Hata, Cathy M. Helgason
<b>19. Pattern Recognition (10)</b>	Yuan Yan Tang, Xinge You
<b>20. Soft Computing (228)</b>	Ajith Abraham, Mario Koeppen, Hideyuki Takagi

# IEEE SMC Society Publications

- **Transactions on Systems, Man, and Cybernetics: Systems**
- **Transactions on Human-Machine Systems**
- **Transactions on Cybernetics**
- **Transactions on Computational Social Systems**
- **SMC Magazine**
- **SMC eNewsletter**

# IEEE SMC Society Conferences

## Flagship Conference

IEEE International Conference on Systems, Man, and Cybernetics

October 06, 2017 - October 09, 2019

Bari, Italy

<http://www.smc2019.org/>

IEEE International Conference on Systems, Man, and Cybernetics

October 11, 2018 - October 14, 2020

Toronto, Canada

<http://www.smc2020.org/>

# SSE-area Book Project

**Update** on *Wiley-IEEE Press Series on Systems Science and Engineering* (Mengchu Zhou, Ed.; H. Li and M. Weijnen, Co-Eds.):

**Published titles in IEEE/Wiley Series on Systems Science and Engineering, updated in Aug. 2015:**

1. Kulkarni, **Reinforcement & Systemic Machine Learning for Decision Making, 2012**
2. Chao/Cheng, **Remote Sensing and Actuation Using Unmanned Vehicles, 2012**
3. Sadati/Dumont/Gruver, **Dynamical Legged Locomotion, 2012**
4. Yu/Tao, **Modern Machine Learning: Techniques and Their Applications in Carton Animation Research , 2013**
5. Tan/Zhou, **Design of Scientific Workflows, 2013**
6. Deng, **Operator-Based Nonlinear Control Systems, 2013**
7. Li/Lu, **Model-Based Robust Design for Complex Systems, 2014**
8. Chang/Pires, **Sustainable Solid Waste Management, 2015**
9. Zhou/Li/Weijnen, ***Contemporary Issues in Systems Science and Engineering, 2015***
10. Savkin/Cheng/Xi/Javed/Matveev/Nguyen, **Distributed Coverage Control Problems for Mobile Robotic Sensor/Actuator Networks, 2015**

# SSE-area Book Project

**Update** on *Wiley-IEEE Press Series on Systems Science and Engineering* (Mengchu Zhou, Ed.; H. Li and M. Weijnen, Co-Eds.):

11. Liu, **Automated Transit Systems: Planning, Operation, and Applications, 2016**
12. Li/Zhou/Han, **Advances in Battery Manufacturing, Service, and Management Systems, 2016**

**Forthcoming:**

13. Whitcomb, **Systems Design, Integration, and Engineering, Forthcoming**
14. Schneidewind, ***System Engineering of Computer Networks*, Forthcoming**
15. Li, **Advances in Battery Manufacturing, Service, and Management Systems, Forthcoming**
16. Y. Jiang and Z.-P. Jiang, **Robust Adaptive Dynamic Programming, Forthcoming**

**Call for Book Proposals can be found in the IEEE SMC Magazine**

# IEEE SMC Operational Plan

Systems Science and Engineering Technical Area

## **Goal: Enhance Society recognition as the leading society in the area of SSE**

### 1.1 Strengthen and enhance the SSE area

#### 1.1.1 Develop new TCs and revitalize our existing TCs

1.1.1.1 Review common criteria for regular evaluating TCs and stress rules for closing of non-operating TCs

1.1.1.2 Continue in the development of mechanisms for identifying potential new TCs

1.1.1.3 Establish 2 new TCs according to the criteria seeking good coverage of topics

#### 1.1.2 Increase TC involvement in all society activities (conferences, membership, and publications)

1.1.2.1 Support revision of TC website format and content based on continuous experience

1.1.2.2 Identify and implement TC website content

1.1.2.3 Ensure regular refreshment of TC website content by TCs

1.1.2.4 Continue the involvement of the Society in the ongoing Wiley book Series

1.1.2.5 Continue to encourage webinars, conferences, and online tutorials

## **Goal: Enhance Society recognition as the leading society in the area of SSE**

### 1.1.3 Attract new researchers in SSE area

1.1.3.1 Develop and recommend new initiatives to increase the involvement of SSE membership

1.1.3.2 Introduce awards such as a best Ph.D. dissertation award in the SSE area

1.1.3.3 Attract new SSE leaders

1.1.3.4 Attract new SSE leaders from Industry and Government

### 1.1.4 Increase collaboration with other systems societies

1.1.4.1 Participate in the Future of Systems Engineering with INCOSE

1.1.4.2 Joint special sessions with INCOSE at the SMC 2019 Conference

1.1.4.3 Collaborate with IEEE S/C

1.1.4.4 Continue educational collaborative work with ISSS



# **SMC Representatives for 2019**



**Adrian Stoica**  
**NASA JPL**



**Ferial El-Hawary**  
**Dalhousie University**

**Questions or comments?**

**Possible collaboration  
opportunities?**

# Contact Information:

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