CALL FOR PAPERS

Special Issue in
IEEE Transactions on Cybernetics

From Intelligent Control to Smart Management of Cyber-Physical-Social Systems:
A Celebration of 70th Anniversary of Cybernetics by Norbert Wiener

TOPIC SUMMARY:
In 1948, Norbert Wiener published Cybernetics, which defined cybernetics as 'the scientific study of control and communication in the animal and the machine'. In the recent years, cybernetics has contributed to tremendous advances from intelligent control to smart management of Cyber-Physical-Social Systems (CPSS). A variety of specialized journals and books has been published to tackle various aspects of these topics. The intelligent control techniques of cybernetics usually include, but are not limited to: artificial intelligence, machine learning and evolutionary computation. It is known that control system and external environment are usually treated separately in the traditional control. With the help of novel technologies such as cloud computing, big data and intelligent systems, the concept cyber-physical systems (CPS) was coined to describe the seamless connection and coordination between computational (or cyber) and physical resources. In addition, due to the unprecedented sphere and speed of influence experienced in the cyberspace and its profound impact on the way, we behave and interact with each other in some extent. Therefore, social and human dynamics must be integrated as a part of any effective CPS design and operation, thus inserting social factors into CPS is reasonable and well justified. Based on the above discussions, CPSS is presented, in which CPS is tightly conjoined, coordinated, and integrated with human and social characteristics. It will offer new opportunities and call for the advancement of interdisciplinary theory in both human and computational studies.

The aim of this special issue is to celebrate the 70th Anniversary of Cybernetics by Norbert Wiener, and call for the most advanced research in the field of cybernetics. Specific topics of interest include but are not limited to:

- History and Survey of Cybernetics;
- Recent Developments of Learning, Computational Games, and Artificial Intelligence;
- Modeling, Analysis, and Intelligent Control of Cyber-Physical Systems;
- Representation, Analytics, and Smart Management of Cyber-Physical-Social Systems;
- Knowledge Automation and Automation of Intelligence;
- Perspectives on Intelligent Technology and Future Cybernetics;
IMPORTANT DATES:
- Deadline for submission: December 31, 2017
- First round of review: April 15, 2018
- Deadline for submission of revised manuscripts: May 31, 2018
- Final decision of acceptance: June 30, 2018
- Tentative publication date: October 30, 2018

SUBMISSION GUIDELINES:
- Prospective authors are invited to submit their manuscripts electronically, adhering to the IEEE Transactions on Cybernetics guidelines.
- Note that the page limit is the same as that of regular papers. Please submit your papers through the online system (https://mc.manuscriptcentral.com/cyb-ieee) and be sure to select the special issue name “Celebration of 70th Anniversary of Cybernetics by Norbert Wiener.” Manuscripts should not be published or currently submitted for publication elsewhere. Please submit only full papers intended for review, not abstracts, to the ScholarOne portal. If requested, abstracts should be sent by e-mail to the Guest Editors directly.

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