

A FOREWORD FROM THE EDITOR

Lviv Polytechnic National University is pleased to announce the launch of a new journal: *Advances in Cyber-Physical Systems* (ACPS).

ACPS will publish timely, novel and high-quality recent results that advance the state of the art and practice in Cyber-Physical Systems, including theoretical principles, tools, applications, systems infrastructure, and test beds for Cyber-Physical Systems. Cyber-physical Systems are engineered systems whose operations are monitored, coordinated, controlled, and integrated by a computing and communication core embedded in all types of objects and structures in the physical environment. Examples of the many Cyber-Physical Systems application areas include the smart electric grid, smart transportation, smart buildings, smart medical technologies, next-generation air traffic management, and advanced manufacturing. Such systems must be operated safely, dependably, securely, efficiently and in real-time. Advances in this field will have great technical, economic and societal impacts in the near future.

Advances in Cyber-Physical Systems topics include but are not limited to the following:

1. Theoretical Foundations of Cyber-Physical Systems.
2. System Modeling, Simulation, Analysis and Synthesis Techniques.
3. Architectures for Cyber-Physical Systems.
4. Building Blocks for Cyber-Physical Systems.
5. Operating systems for Cyber-Physical Systems.
6. Embedded Computer Systems Architecture and Design.
7. High-Performance Computer Systems Architecture and Design.
8. Reconfigurable and Self-Configurable Computer Systems.
9. Measurements in Cyber-Physical Systems.
10. Virtual Instrumentation.
11. Advanced Instrumentation and Data Acquisition Systems.
12. Wireless Sensor Networks.
13. Digital Signal and Image Processing.
14. Artificial Intelligence In Cyber-Physical Systems.
15. Information Security in Cyber-Physical Systems.
16. Automation Control in Cyber-Physical Systems.
17. Mechatronics for Cyber-Physical Systems.
18. Mobile Cyber-Physical Systems.
19. Distributed Cyber-Physical Systems.
20. Cyber-Physical Systems Applications.
21. Certification and Privacy of Cyber-Physical Systems.

These topics will be grouped on four thematic directions:

1. Computer Technologies for Cyber-Physical Systems;
2. Metrology and Instrumentation in Cyber-Physical Systems;
3. Information Technologies for Cyber-Physical Systems;
4. Design and Application Technologies of Cyber-Physical Systems.

Research on CPS is currently growing rapidly, primarily within above mentioned four directions. The number of researchers, publications, conferences and books has been increasing exponentially in recent years. Thousand of companies are developing CPS-related products. Several new journals have also been created, including this one. We are honored to have been entrusted to serve as the editors of this exciting new journal.

Advances in Cyber-Physical Systems encourages original articles in areas of its scope, including technical contributions, short communications and novel surveys. Proposals for special issues in cutting-edge and newly developing areas of cyber physical systems are encouraged, and should be discussed with us. A website submission system will soon be established to facilitate paper management and the review process. With the support of our readers, we believe that *Advances in Cyber-Physical Systems* journal will publish high-quality articles and make an important impact in the areas of its scope.

Using the journal inauguration as an occasion, I would like to thank many people who created the opportunity for the journal to be born and who made it happen. The list includes all current Editorial Board, the Lviv Polytechnic Publishing House team, and many others. In particular, my greatest thanks are due to rector of Lviv Polytechnic National University professor Yuriy Bobalo and to professor Bohdan Stadnyk, who have actively supported the journal edition.



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