

## Important Dates

[Article Submission Deadline]

**[21.05.2022]**

[Authors Notification Date]

**[05.08.2022]**

[Revised Papers Due Date]

**[25.10.2022]**

[Final notification Date]

**[30.12.2022]**

# [Exploring Next Generation Domestic Robotics in Connected World]

For decades, the world of automation was structured by a certain order. Robotics is a trend that we will probably see further beyond 2021. Global robotic service sales are expected to top \$55 trillion in 2023, according to the International Robotics Federation. Most recently AI and Big Data powered robots worked at factories, and humans enjoyed the advantages of their work. On the other hand, the domestic robot is a service robot type, an independent robot used primarily for housekeeping but could also be used for education, entertainment, and treatment. Although most household robots are simple, some are highly independent and are connected to Wi-Fi home networks or intelligent environments. Elderly and immobilized residents use domestic humanoid robots to hold them in the company. Homemade telepresence robots can be moved in remote places and communication can be established using the camera, speaker, and microphone. Network robots interconnect all-around networks with robots, helping to create new lifestyles and solutions to social issues such as aging and nursing. For quite a while now robots constructed for therapy have been in production. Some of these applications may include autism or physical therapy. Home robots can vacuum the house, clean the kitchen or bathroom, load the dishwasher or unload or polish the shoes. Despite hundreds of millions of potential customers and users, few such robots are surprisingly available. There are several challenges in the economic context, the situation of the market, the marketing of service robots, and the technical environment slowing the triumphal procession of domestic robots. A broad range of domestic floor cleaning robots, lawn-mowing robots, robotic pool cleaners, and window cleaning robotics seem to be presenting the latest developments. The new technology perspectives contributed to some degree to solving the challenges.

Building domestic robotics necessitates extremely multidisciplinary expertise that requires a holistic approach. Domestic Robotics consists of five main areas: robotics system, manipulation, navigation and object recognition, and human-robot interaction, and is a collection of the newest technological developments in household service robotics. Advanced methods and techniques are essential to enable the theory to be extended to real systems, involving coverage of features such as vision systems, control locations, and human-computer interactions, which are crucial in the home environment.

Against this background, this special issue entitled “Exploring Next Generation Domestic Robotics in Connected World” enables an ideal opportunity for discussing the technologies in the development of Robotic machinery employed for assisted living and elderly care, Surveillance of Household, Automation of Domestic cleaning, and public spaces guiding aids.

## The topics of interest for the special issue include, but not limited to, the following:

- ⊕ Challenges in domestic robotic systems and control
- ⊕ Technologies in Vision systems used in domestic robots
- ⊕ Design of System Architectures for household robots
- ⊕ Designing Surveillance robots incorporating audio and video
- ⊕ Impediment Avoidance models in domestic robots
- ⊕ Creating Harmonious Human-Computer Coexistence
- ⊕ Models for handling robot sensor data
- ⊕ Location control and Management in domestic settings
- ⊕ Human-computer interaction in domestic robots
- ⊕ Enactment of Cognitive Controls in domestic robots
- ⊕ Design of algorithms for human-robot interaction
- ⊕ Development of Object recognition and manipulation models
- ⊕ Assessing the Nature and Verbal Behavior of domestic robots
- ⊕ Enhanced navigation techniques for household robots
- ⊕ Ontology of environments to assist humans

## Submission Information

- Paper must follow the journal's general requirements and should be submitted directly to the International Journal of Robotics and Automation at [IJRA Editorial Manager](#). Learn more about ACTA Press submission requirements at <https://www.actapress.com/submissioninfo.aspx>
- Submission should be classified as "Full Article for a special issue". **Note:** Please kindly comment on your submission, indicating that you are referring to the Special Issue of Exploring Next Generation Domestic Robotics in Connected World, recommended by Dr. Gunasekaran Manogaran
- Accepted paper will be published as a special issue in the International Journal of Robotics and Automation of ACTA Press.

## Guest Editors Bio

### **Dr. Gunasekaran Manogaran [Leading Guest Editor]**

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**Dr. Ching-Hsien Hsu** is Chair Professor and Dean of the College of Information and Electrical Engineering, Asia University, Taiwan; His research includes high-performance computing, cloud computing, parallel and distributed systems, big data analytics, ubiquitous/pervasive computing, and intelligence. He has published 200 papers in top journals such as IEEE TPDS, IEEE TSC, ACM TOMM, IEEE TCC, IEEE TETC, IEEE System, IEEE Network, top conference proceedings, and book chapters in these areas. Dr. Hsu is the editor-in-chief of International Journal of Grid and High-Performance Computing, and International Journal of Big Data Intelligence; and serving as the editorial board for several prestigious journals, including IEEE Transactions on Service Computing, IEEE Transactions on Cloud Computing, International Journal of Communication Systems, International Journal of Computational Science, AutoSoft Journal. He has been acting as an author/co-author or an editor/co-editor of 10 books from Elsevier, Springer, IGI Global, World Scientific, and McGraw-Hill. Dr. Hsu was awarded six times talent awards from the Ministry of Science and Technology, the Ministry of Education and nine times distinguished awards for excellence in research from Chung Hua University, Taiwan. Since 2008, he has been serving as the executive committee of IEEE Technical Committee of Scalable Computing; IEEE Special Technical Committee Cloud Computing; Taiwan Association of Cloud Computing. Dr. Hsu is a Fellow of the IET (IEE); Vice-Chair of IEEE Technical Committee on Cloud Computing (TCCLD), IEEE Technical Committee on Scalable Computing (TCSC), a senior member of IEEE.

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**Dr. Qin Xin** graduated with his Ph.D. in the Department of Computer Science at the University of Liverpool, the UK in December 2004. Currently, he is working as a professor of Computer Science in the Faculty of Science and Technology at the University of the Faroe Islands (UoFI), Faroe Islands. Before joining UoFI, he had held various research positions in world-leading universities and research laboratories including Senior Research Fellowship at Universite Catholique de Louvain, Belgium, Research Scientist/Postdoctoral Research Fellowship at Simula Research Laboratory, Norway, and Postdoctoral Research Fellowship at the University of Bergen, Norway. His main research focus is on the design and analysis of sequential, parallel, and distributed algorithms for various communication and optimization problems in wireless communication networks, as well as cryptography and digital currencies including quantum money. Moreover, he also investigates combinatorial optimization problems with applications in Bioinformatics, Data Mining, and Space Research. Currently, he is serving on the Management Committee Board of Denmark for several EU ICT projects and has produced more than 70 peer-reviewed scientific papers. His works have been published in leading international conferences and journals, such as ICALP, ACM PODC, SWAT, IEEE MASS, ISAAC, SIROCCO, IEEE ICC, Algorithmica, Theoretical Computer Science, Distributed Computing, IEEE Transactions on Computers, Journal of Parallel and Distributed

Computing, IEEE Transactions on Dielectrics and Electrical Insulation, and Advances in Space Research. He has been very actively involved in the services for the community in terms of acting (or acted) on various positions (e.g., Session Chair, Member of Technical Program Committee, Symposium Organizer and Local Organization Co-chair) for numerous international leading conferences in the fields of distributed computing, wireless communications and ubiquitous intelligence and computing, including IEEE MASS, IEEE LCN, ACM SAC, IEEE ICC, IEEE Globecom, IEEE WCNC, IEEE VTC, IFIP NPC, IEEE Sarnoff and so on. He is the Organizing Committee Chair for the 17th Scandinavian Symposium and Workshops on Algorithm Theory (SWAT 2020, Torshavn, Faroe Islands). Currently, he also serves on the editorial board for more than ten international journals.