



**IEEE SMC 2022**  
**International Conference on Systems,  
Man, and Cybernetics**  
Clarion Congress Hotel Prague, Czech Republic  
October 9-12, 2022

## Special Session

Code: 2xir2

### Title

*New frontiers of Intelligent Pervasive Healthcare Systems*

### Proposer / Main Organizer

**Gabriella Casalino**, Department of Informatics, University of Bari Aldo Moro, [gabriella.casalino@uniba.it](mailto:gabriella.casalino@uniba.it)  
(corresponding proposer)

*Gabriella Casalino is Assistant Professor at the Computational Intelligence laboratory (CILab) of the department of Informatics, University of Bari, working on machine learning techniques applied to the Web Economy domain. Her research activity is focused on Computational Intelligence with a particular interest in data analysis. Three are the main themes she is currently working on: Intelligent Data Analysis, Computational Intelligence for eHealth, Data Stream Mining. She is active in the computer science community as a reviewer for international journals and conferences such as Information Sciences, International Journal of Intelligent Systems. She is also involved in the organizing committees of international conferences such as IEEE International Conference on Evolving and Adaptive Intelligent Systems (EAIS). She is Associate Editor of Journal of Intelligent and Fuzzy Systems and she is Guest Co-Editor of several journals. She is a Senior member of the IEEE society.*

**Giovanna Castellano**, Department of Informatics, University of Bari Aldo Moro, [giovanna.castellano@uniba.it](mailto:giovanna.castellano@uniba.it)

*Giovanna Castellano is Associate Professor at the Department of Computer Science of the University of Bari and coordinator of the Computational Intelligence Laboratory. Her research interests are in the area of computational intelligence and include fuzzy image processing and computer vision, fuzzy systems, fuzzy clustering, image processing, image retrieval, neural networks, neuro-fuzzy modeling, granular computing and recommender systems. She is co-author of over 200 papers in peer-reviewed books, conference proceedings and international journals covering the above topics. She is Associate Editor of Information Sciences, Evolving Systems and International Journal of Intelligent Systems. She is member of the Program Committee of several refereed conferences. She acts as a reviewer for several international scientific journals published (Elsevier, IEEE, Springer) and for international conferences. She was General chair of 2020 IEEE International Conference on Evolving and Adaptive Intelligent Systems (EAIS2020) and Program Chair of 2022 IEEE International Conference on Evolving and Adaptive Intelligent Systems (EAIS2022).*

**Uzay Kaymak**, Jheronimus Academy of Data Science, Eindhoven University of Technology, [u.kaymak@ieee.org](mailto:u.kaymak@ieee.org) Uzay Kaymak is Full Professor of Information Systems in Healthcare with Jheronimus Academy of Data Science, Eindhoven University of Technology, Eindhoven, the Netherlands. His research interests include fuzzy decision support, interpretable fuzzy modeling, computational intelligence, and intelligent systems for healthcare decision support. He has co-authored more than 250 academic publications in the fields of intelligent decision support systems, computational intelligence, data mining, and computational modeling methods. Dr. Kaymak has been an Associate Editor for the IEEE Transactions on Fuzzy Systems and is a Member of the Editorial Board of multiple journals. He is a Past Chair of the Fuzzy Systems Technical Committee and the Computational Finance and Economics Technical Committee of the IEEE Computational Intelligence Society. He is also a member of the

Technical Committee on Distributed Intelligent Systems of the IEEE Systems, Man and Cybernetics Society. He was a Program Co-chair of 2010 IEEE International Conference on Systems, Man and Cybernetics (SMC 2010), the Program Chair of 2015 IEEE International Conference on Fuzzy Systems (FUZZ-IEEE 2015), and General Chair of IFSA 2009 and IPMU 2016 international conferences.

**Gianluca Zaza**, Department of Informatics, University of Bari Aldo Moro, [gianluca.zaza@uniba.it](mailto:gianluca.zaza@uniba.it)

Gianluca Zaza is a PhD candidate at the Computational Intelligence laboratory (CILab) of the department of Informatics, University of Bari, working in the area of Computational Intelligence for telemedicine. Specifically his PhD project is focused on monitoring vital parameters by using remote photoplethysmography and predicting cardiovascular risk by using computational intelligence techniques. He is active in the scientific community as a reviewer for international journals and conferences such as Journal of Engineering in Medicine, Journal Biomedical Signal Processing and Control, Journal of Multimedia Tools and Applications. He is also CEO of the MIRACLE start-up company working on contactless solutions for health monitoring.

## IEEE Member or SMC Society Member

Gabriella Casalino, IEEE Senior Member

Giovanna Castellano, IEEE Senior Member

Uzay Kaymak, IEEE Senior Member

## Category

Cybernetics

## Number of Expected Paper Submissions:

6 or more

## Keywords

- Computational Intelligence
- Fuzzy Systems and their applications
- Intelligent Internet Systems
- Agent-Based Modeling
- Application of Artificial Intelligence
- Biometric Systems and Bioinformatics
- Cloud, IoT, and Robotics Integration
- Deep Learning
- Evolutionary Computation
- Expert and Knowledge-Based Systems
- Fuzzy Systems and their applications
- Hybrid Models of Neural Networks, Fuzzy Systems, and Evolutionary Computing
- Image Processing and Pattern Recognition
- Intelligent Internet Systems
- Machine Learning
- Machine Vision
- Medical Informatics
- Neural Networks and their applications

## Brief Description and Justification (200-250 words):

The proposed special session on “New frontiers of Intelligent Pervasive Healthcare Systems” aims at creating an international forum with specific focus on intelligent technologies and human factors related to the use of pervasive computing for healthcare and wellbeing.

Traditional healthcare environments are extremely complex and challenging to manage. Pervasive and ubiquitous technologies seek to overcome these limits by successfully integrating the new technologies within existing healthcare environments.

It is essential that pervasive healthcare environments, through a combined approach of intelligent techniques for data collection, data processing and data presentation, assist healthcare professionals in delivering patient care, and empower individuals and their families for self-care and health management.

Intelligent systems are crucial to inject the human factor in automatic devices, to support clinicians in their daily work, and to enhance the process of knowledge extraction from different sources of data (such as, wearable devices, smart objects, etc.)

Moreover, the last two years were challenging in all dimensions of pervasive health. The covid-19 pandemic brought some opportunities and the new technologies developed or adapted for care as well as new care models are here to stay.

This special session aims at gathering experts, practitioners, industry and international authorities contributing towards the assessment, development and deployment of pervasive medical based intelligent technologies, standards and procedures. Moreover, it seeks new care models and technologies which embed the "human factor" to yield best results for future healthcare.