

Special Session on:

Ambient Computational Intelligence

in

Symposium on Computational Intelligence for Human-like Intelligence

Proposed by: Ahmad Lotfi (ahmad.lotfi@ntu.ac.uk), Giovanni Acampora and Caroline Langensiepen

Ambient Intelligence has been adopted as a term referring to environments that are sensitive and responsive to the presence of people and it is a candidate to become the next wave of computing. Indeed, this novel computing approach is aimed to extend ubiquitous vision by incorporating intrinsic intelligence in pervasive systems. This idea enables the study, design and development of embodiments for smart environments that not only react to human events through sensing, interpretation and service provision, but also learn and adapt their operation and services to the users over time. These embodiments employ contextual information when available, and offer unobtrusive and intuitive interfaces to their users.

The aim of this special session is to encompass valuable research in integration of Computational Intelligence and Ambient Intelligence. This special session is aimed at sharing latest progress, current challenges and potential applications of fuzzy logic, evolutionary computation and neural and learning systems in the scenario of ambient computing environment.

Some topics of interest are:

- Assisted Ambient Intelligence
- Ambient Intelligence for Healthcare
- Ambient Intelligence Services
- Ambient Intelligence Applications
- Ambient Assisted Living
- Assistive Robotics
- Autonomous Robotic Systems
- Human Behavioural Analysis
- Elderly care Robots
- Evolutionary Computation in Ambient Intelligence
- Fuzzy Logic in Ambient Intelligence
- Hybrid Intelligent Systems for Ubiquitous Computing,
- Intelligent Living Environments
- Intelligent Environments
- Multi-Agent System for Ambient Intelligence
- Neural Networks in Ambient Intelligence

RFID and Wireless Sensor Network Applications
Self-Organization in Ubiquitous Environments
Sensing and Reasoning Technology
Sensing Technologies and Measurements
Signal Fusion in Ubiquitous Environments
Situational/Context Awareness
Smart Evolving Sensors
Smart Homes
Social Sensor Networks
Soft Computing for Embedded Appliances
Well-being and Ambient Intelligence

This special session will be supported by all members of [IEEE CIS Task Force on Ambient Intelligence](#). It is anticipated that members of this TF will contribute to this activity to promote the research of Computational Intelligence in the area of Ambient Intelligence. Details of this special session will be distributed publically through the task force web site.

Technical Committee:

- Ahmad Lotfi, Nottingham Trent University, Nottingham, UK
- Giovanni Acampora, Nottingham Trent University, Nottingham, UK
- Hani Hagra, University of Essex, UK
- Kevin Curran, University of Ulster, UK
- Vincenzo Loia, University of Salerno, Italy
- Parisa Rashidi, University of Florida, USA
- Diane J. Cook, Washington State University, USA
- Athanasios V. Vasilakos, University of Western Macedonia, Greece
- Gordon Hunter, Kingston University, London, UK
- Juan Carlos Augusto, Middlesex University, UK
- Joseph Paradiso, Massachusetts Institute of Technology, USA
- Emile Aarts, Eindhoven University of Technology, the Netherlands
- Caroline Langensiepen, Nottingham Trent University, Nottingham, UK

Important Dates

This Special Session will be part of the 2014 IEEE Symposium Series on Computational Intelligence (IEEE SSCI 2014) to be held between 9-12 December 2014 in Orlando, Florida, USA.

July 18, 2016: Deadline for submission of full-length papers.

September 12, 2016: Acceptance/Rejection Notification.

October 10, 2016: Final papers submission deadline.

Bibliography

Prof Ahmad Lotfi (Senior Member, IEEE) received his BSc. and MTech in Control Systems from Isfahan University of Technology, Iran and Indian Institute of Technology, India respectively. He received his PhD degree in Learning Fuzzy Systems from University of Queensland, Australia in 1995. He is currently a Professor of Computational Intelligence at School of Science and Technology, Nottingham Trent University, Nottingham, United Kingdom where he is leading the research group in Ambient and Computational Intelligence. He has authored and co-authored over one hundred scientific papers in the area of computational intelligence, ambient intelligence and control.



His research interest is mainly in the area of computational intelligence, ambient intelligence and natural computing. Specific areas of interest include learning fuzzy systems, neuro-computing, sensors network, adaptive systems, data mining and intelligent mobile robot navigation strategies. He has extensive research in ambient assisted living. He has managed to secure research funding from European Ambient Assisted Living Joint Programme to support his research group. He has been member of the organising committee for many national and international events and conferences. Namely, he was the organiser and chair of the organising committee for the 7th International Conference on Intelligent Environments. Prof. Lotfi is a member of the IEEE CIS Emergent Technologies Technical Committee and also Chair of the IEEE CIS Ambient Intelligence Task Force.

Dr Giovanni Acampora (Senior Member, IEEE) received the Laurea (cum laude) and Ph.D. degrees in computer science from the University of Salerno, Salerno, Italy, in 2003 and 2007, respectively. Currently, he is a Reader in Computational Intelligence at the School of Science and Technology, Nottingham Trent University, Nottingham, U.K. From July 2011 to August 2012, he was an Assistant Professor in Process intelligence at the School of Industrial Engineering, Information Systems, Eindhoven University of Technology (TU/e), Eindhoven, The Netherlands. Previously, he was a Research Associate at the Department of Computer Science, University of Salerno. He was also a Member of the Multi-Agent Laboratory at the University of Salerno and the Co-responsible Scientist of the CORISA Research Centre. From September 2003 to June 2007, he was also involved in the CRDC-ICT Domotic project, where he was engaged in the research on multiagent systems and artificial intelligence applied to ambient intelligence environments. In this context, he designed and developed the Fuzzy Markup Language, an XML-based environment for modeling transparent fuzzy systems. Currently, FML is under consideration by the IEEE Standard Association to become the first standard in computational intelligence. Currently, Dr. Acampora acts as Chair of IEEE CIS Standards Committee and as vice-Chair of IEEE CIS Task Force on Ambient Intelligence. Dr. Acampora has written some seminal papers on computational intelligence applied to ubiquitous computing and, in particular, his work about fuzzy computation in smart environments is one of the most cited papers of the IEEE TRANSACTIONS ON INDUSTRIAL INFORMATICS.



Dr Caroline Langensiepen is a Chartered Engineer and has had substantial industrial software experience prior to becoming an academic. She has designed and implemented many systems that process large scale physical data sets, both in real time and non-real time settings. She has been a software design authority on such systems, and has experience in taking projects (both large scale and small scale) from initial requirements analysis through to delivery. This experience has since been enhanced by academic research and consultancy in the area of software development, and research in data interpretation/numerical analysis from physical systems.



She has published more than 50 papers, undertaken consultancy with local companies to improve their software analysis and design skills and procedures, and is an active researcher in various areas related to real time monitoring and control. She has successfully achieved funding for SIS projects, and is currently a co-researcher on iCarer - a major EU project.