

# Preface

Hamid Aghajan<sup>a</sup>, Andrea Prati<sup>b</sup>, Carles Gomez<sup>c</sup> and Juan Carlos Augusto<sup>d</sup>

<sup>a</sup> *imec, IPI, Department of Telecommunications and Information Processing, Gent University, Belgium*

<sup>b</sup> *Department of Information Engineering, University of Parma, Italy*

<sup>c</sup> *Wireless Networks Group, Department of Network Engineering, Universitat Politècnica de Catalunya, Spain*

<sup>d</sup> *Department of Computer Science and Research Group on Development of Intelligent Environments, Middlesex University, UK*

## 1. This issue

This issue of JAISE is composed of six papers. The review process for the papers in this issue was supervised by our editors Aki Harma, Alex Mihailidis, Shin'ichi Konomi, Carles Gomez, Ramon Lopez-Cozar Delgado, Zoe Falomir, Juan Antonio Ortega, Natividad Martínez, Hans Guesgen, and Andrea Prati, whom we thank for their service. The back pages of this issue include a PhD thesis report, and an acknowledgment for the 2017 reviewers of JAISE.

The field of human-robot interaction (HRI) has found a new direction in social robotics which explores important issues in designing a robot system that works with people in daily life environments, capable of interacting with, modeling, and learning from humans. Robotic systems in this area should improve their capabilities to not only understand humans but also convey their intention within their actions. The paper **“Robots reasoning about group behavior of museum visitors: Leader detection and group tracking”** by Trejo et al. argues that this behaviour is achievable through a field study conducted at a science museum. The proposed algorithm is able to detect and track a leader within a group of people – the science communicator, and distinguish between group members and non-group members as well, all by means of a cognitive and logical behaviour analysis of their interactions on the scene.

The use of Doppler radar for human fall detection has attracted interest in recent years. A Doppler radar is able to characterize through the Doppler effect the motion dynamics of a human fall, which can be explored for its detection. The paper **“Radar placement for fall detection: Signature and performance”** by Su et al. examines two popular mounting positions of

Doppler radars for human fall detection, namely in the ceiling center and at the torso level. The paper studies the fall signatures observed by a Doppler radar at the two positions and evaluates their consistencies with respect to the fall directions and locations.

Current demographic changes have made it necessary to implement innovative solutions in order to respond to the elderly needs. The paper **“Web platform architecture for ambient assisted living”** by Stefan et al. describes a concept designed to cater for such user needs via modern technologies. Survey data and end-user feedback are collected and processed in order to identify the most frequent types of use cases, such as in-home health monitoring, house monitoring, fall detection, automatic door lock, and indoor mobility pattern. The proposed architecture is service oriented, and uses a general representation of data and protocols for communication, and is flexible to be extended to provide more services in the future.

Most researchers consider Quality of Life as a multidimensional concept in elderly care encompassing health, functional status, social, as well as other aspects of an individual's life. The paper **“User needs and preferences on AAL systems that support older adults and their carers”** by Cesta et al. describes a systematic investigation on the expectations of potential users of Ambient Assisted Living (AAL) technologies. More specifically, it describes the efforts made to elicit users expectations for services of an AAL system that aim to monitor older people, foster their independent living, and prevent dangerous situations. The paper proposes a plan for a rigorous systematization of the user's needs and their validation based on a combination of qualitative and quantitative techniques involving both the primary users (older users at home) and the secondary users (formal and informal care-

givers). Four main areas relevant to the realization of personalized services have been identified that could help to support independent living and improve Quality of Life, including the monitoring of social interaction, physiological data, daily activities and environmental data.

A pervasive computing environment is characterized by computing capabilities and effective use of smart spaces. Many critical elements of pervasive computing, such as wireless networks are now viably commercial products. Ambient services are known as one of the main types of pervasive information services in which suitable information is presented to the users based on their surrounding geographical environments. Increase in the use of such services may cause service domain overlapping in which many of the users are located in several domains simultaneously. The paper **“A spatially aware policy conflict resolution for information services”** by Davtalab and Malek proposes an information service composition to the users by considering spatio-temporal context and analysis. User’s location, direction and speed are regarded as the most effective spatial contexts. Spatio-temporal topological relationships as well as influence-ability relations are used to model the topological context.

Civil buildings are prone to various kinds of damages. The detection of damages caused in a building at an early stage is essential in order to save human life. Wireless sensor networks (WSN) help to detect dam-

ages caused to a building by sensing different factors. Energy efficiency of sensor nodes and network congestion are quite common issues in wireless sensor networks that affect the network performance. The paper **“Biogeography-Based Krill Herd algorithm for energy efficient clustering in wireless sensor networks for structural health monitoring applications”** by Senniappan and Subramanian proposes the formation of energy efficient clusters to mitigate congestion by considering the buffer occupancy level and the fairness index of flows to improve the network lifetime.

## 2. Upcoming issues

The following is the list of upcoming issues of JAISE:

- March 2018: Regular Issue.
- May 2018: Thematic Issue based on papers from *“Intelligent Environments 2017”*.
- July 2018: Regular Issue.
- September 2018: Thematic Issue on *“IoT for personal or mobile Health”*.
- November 2018: Regular Issue.

More information on the call for papers for future thematic issues is available on the webpage of JAISE at: <http://www.iospress.nl/journal/journal-of-ambient-intelligence-and-smart-environments/>