Preface

Hamid Aghajan [a], Aki Harma [b], Kevin I-Kai Wang [c] and Juan Carlos Augusto [d]

[a] *imec, IPI, Department of Telecommunications and Information Processing, Ghent University, Ghent, Belgium*
[b] *Philips Research, Eindhoven, The Netherlands*
[c] *The University of Auckland, Auckland, New Zealand*
[d] *Dept. of Computer Science and R.G. 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 Anthony Fleury, Stefano Chessa, George Roussos, Anthony Fleury, Shin'ichi Konomi, Gordon Hunter, Raul Herrera, and Tiina Kymäläinen, whom we thank for their service. The back pages of this issue also include a PhD report.

The smart home concept has been around for close to three decades. Despite this history, a meaningful commercial market has not taken off in face of many optimistic forecasts over these years. One of the main reasons for this seems to be that the smart home instances still have not properly matched the needs and preferences of people in their real life. The paper **"Living preference modeling of smart homes for different target groups"** by Allameh et al. investigates how smart homes should be used in the daily life of different target groups, and proposes a virtual experiment in which participants explore a 3D interactive simulated smart home and report their living experience in it for a weekday and a weekend. The paper employs a Bayesian belief network to formulate the relationship between the variables that may influence a user's living preference in a smart home.

Artificial life models allow us to explore real natural phenomena during their emergence and evolution within hours of runtime. Artificial individuals are defined to behave according to their needs and the situation in the vicinity. Observation of these intelligent agents over time and their evolution through natural selection provides additional input for decision making processes. The paper **"Analytic hierarchy process in artificial life model based on fuzzy cognitive maps"** by Nachazel proposes an approach to the modelling of individual-based artificial life models based on fuzzy cognitive maps. The proposed concept focuses on the optimization of the artificial intelligence of individuals in multi-agent models and their adaptation to an environment.

Smart environments (SmE) are often designed as embodiments which support Ambient Intelligence applications. In order to serve as a useful technology operating in the background, these environments must operate in real-time and support automatic self-configuration and self-adaptation. In SmE architectures, both physical devices and humans may provide low-level services based on their capabilities. These services are composed and connected in order to create high-level services. The composition in traditional settings requires human intervention, so changes in services are not automatic. The paper **"Fast self-configuration in service-oriented smart environments for real-time applications"** by Bordel et al. proposes a semi-automatic self-configuration and automatic self-adaptation technology for service-oriented SmE. The proposed technology is based on the definition of templates at different levels which are related by means of semantic information.

While a wide variety of technologies enable the implementation of today's smart environments, little work has been done on how to guide an effective and efficient adoption and utilization of these technologies to achieve specific objectives such as productivity and safety. The paper **"A novel methodology for designing smart workplace environment utilizing fuzzy relations"** by Aly et al. analyses a given workplace environment in terms of tasks and goals. It then structures and quantifies effect relations between the goals and the available technologies through linking them to intermediate task objectives and proposing potential improvement opportunities through fuzzy relations.

Challenges in ubiquitous computing, including the limitation of being multi-domain, absence of a uniform name-space, challenges in user mobility, limited resources, lack of scalability, and other issues faced by these systems have led researchers to develop hybrid ubiquitous architectures which are generally cloud-based. The paper **"Characteristics and categorization of services in CLOUBI: A CLOud-based UBIquitous architecture"** by Salehan et al. examines the characteristics and categories of services in ubiquitous cloud computing, and surveys the reasons for using hybrid architectures and especially ubiquitous cloud architectures. The paper then considers the nature of user requests in a ubiquitous environment, and proposes a set of expected requirements of services which a hybrid ubiquitous architecture should provide.

Crime prediction has become a relevant area of research given the demands and complexities of today's metropolitan areas. Research in crime prediction is often supported by criminology theories such as the routine activity theory, rational choice theory, and crime pattern theory. The paper **"Crime prediction and mapping based on real time video analysis"** by Mohammed et al. presents a three phase approach to crime prediction based on video analysis, neuro-fuzzy inference, and density mapping. Crime indicator concepts are modelled and used in building classifiers for crime indicator events, and a neuro-fuzzy inference system modelled from training data is used to make predictions about the classified crime indicator events.

2. Upcoming issues

The following is the list of upcoming issues of JAISE:

– 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
– January 2019: JAISE 10th Anniversary 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/.