Preface

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1. This thematic issue

Artificial Intelligence has been hand in hand with computer science since the very beginning of the field, from the days Alan Turing was wondering on the potentials and the limitations of his automata or the machines he was helping to design at Bletchley Park, or from the time he played chess with a friend "on behalf of the machine" or thought of the "imitation game" as a test to detect presence of intelligence. Then the area took a more formal turn when it was identified as a specific area of research in 1956 in that famous gathering of celebrated researchers at Dartmouth College.

More than half a century later, the area is still very much active and thriving to create value while at the same time still continuously trying to prove itself. With ups and downs across decades and given its deep emphasis on theoretical underpinning concepts, it has succeeded in offering significant advances in practical domains to the industry both on a small scale (e.g., expert systems for manufacturing) and on a large scale (e.g., the Mars rover). Still the initial aims were so formidable that whenever a landmark is reached there are plenty others waiting to be explored on the long way to claim success.

For decades the very reason for the existence of AI has been challenged by the skeptics, oddly enough for the same reason that the advocates resorted to: complexity of the practical systems. To begin with, a chance was given to AI to develop systems which spared humans of having to deal with inhospitable or life-threatening environments like controlling a robot for exploring Mars, for bomb deactivation, or for dispatching to a building on fire or under the risk of collapse.

Now technology offers AI good reasons to target much friendlier environments. Thanks to the miniaturization and the decrease in the cost of technology a wide range of sensing and computing devices can now be spread in a diversity of environments to turn them into Smart Environments. Smart Homes with their different application potentials are just an example of that. Smart cars are lighting up competition in the automotive industry as all major companies race to exceed their rivals on the number of sensors deployed in their cars. Smart classrooms and offices are other interesting developments. A system of Ambient Intelligence can then use the distributed intelligence which allows the system to interact with the environment to support humans in their daily lives. While each of these examples may appear like just another application, attempting to build one such system reveals the various complexities involved in the process of detecting when a specific human needs support, how the support has to be delivered and how the system can monitor an environment and deliver help while being subtle at all times.

This is an exciting time for AI because now as never before it has the opportunity of reaching out and into the society and people's daily lives on a large-scale basis. Ambient Intelligence systems are precisely driving that development. The metrics for success are now not in the hands of a group of judges assigning figures of merit to the traditional Artificial Intelligence methods, but with real people who collectively determine whether the system has any useful intelligence. This is not a trivial judgment metric for AI to cope with. Success is linked to the level of usefulness of the system, which will determine whether the system is massively adopted or not.

There are several areas which influence the user's judgment, including the quality of human-computer interfaces and the quality of sensing the various events of importance. It is essential for an AI system to be prompt in detecting an opportunity to help the user, in deciding the best way to provide help, and in being subtle in the way help is delivered.

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Given the relevance of the problem of embedding general and domain-independent intelligence in an Ambient Intelligence system this issue of JAISE is dedicated to the theme of contributions of Artificial Intelligence (AI) to Ambient Intelligence (AmI). Hence we are very pleased to bring to you the third issue of JAISE on this theme, edited by three distinguished colleagues Anind Dey, Carlos Ramos and Achilles Kameas.

2. Upcoming issues

Consistent with the importance that knowledge about humans has for achieving a functioning Ambient Intelligence system in a Smart Environment, a team of distinguished researchers in the area is currently organizing a thematic issue on the Computational Modeling of Human-oriented Knowledge within Ambient Intelligence, which will open the second volume of JAISE. More information on this thematic issue is offered on the webpage of JAISE.

3. Upcoming events

As usual for an area as active as ours there are interesting events held on the subject around the world throughout the year. The last pages of this issue provide more information on some interesting upcoming events.