

Reliability on Pervasive Well-being: will it soon become a reality?

State of the art and open issues

Call for Papers for a *Special Issue* of the *Journal of Reliable Intelligent Environments*

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The increasing availability of ubiquitous communication technologies, as well as the increasing availability of devices (including wearable devices) able to sense and collect information about the health of the patients, the activities they execute, and the environment in which they operate, led researchers to investigate *reliable* technological solutions for *pervasive well-being*.

Pervasive well-being includes integrated software and hardware technologies that allow anyone at any time and in any place to monitor their activities, to enforce their habits, to maintain a healthy lifestyle, thus increasing their quality of life. Both general-purpose systems, and specialized ones (e.g., for the sports people, for the elderly, for families, for pets, and so on) are more and more available as research prototypes or early market products. However, many of these systems are conceived as consumer electronics devices, with no special care on **device and system reliability**.

A pre-conference workshop of the IE'18 conference (<http://intenv.org/>) on the Reliability of Intelligent Environments (WoRIE 2018) has served as a forum to discuss the state of the art, trends and novel methods and techniques to improve the reliability of IE systems, including those supporting pervasive well-being. This workshop, which is gradually consolidating and covers a broad range of topics, intends to build solid bridges of collaboration between the different communities involved in the research and development of IE. More information about the workshop is available at <http://www.ugr.es/~worie/2018/>.

Following the mentioned workshop edition, this is an **open call for papers** for a *Special Issue* of the *Journal of Reliable Intelligent Environments* (<http://www.springer.com/computer/hardware/journal/40860>) that aims to expand the discussion of such exciting and challenging topics beyond the workshop in the domain of pervasive well-being. More specifically, submissions of full journal manuscripts describing research on the general theme of **Reliability on Pervasive Well-being** are welcome from anyone interested in such topics, not only workshop participants.

The development of pervasive well-being systems is a challenging task, mainly due to the need of integrating diverse software and hardware components, each of them with a high degree of complexity by themselves. We also have to think that sensors are unreliable from time to time, networks are sporadically unstable, unexpected events may occasionally happen, and users can make use of the system in contexts that were not originally foreseen. Moreover, many of these systems are specifically designed to take care of people who are vulnerable or have special needs, such as disabled people, persons with chronic diseases or the elderly, with the aim of increasing their quality of life and supporting an independent living for them. The focus of the call is on the **overall systems properties providing reliable solutions** to pervasive well-being, and not just the individual sensors or wearable devices.

Consequently, it is advisable to apply a combination of methods and techniques, such as the ones coming from Software Engineering (e.g., specification, modelling, verification, validation, simulation, testing, etc.) to analyse and establish the correctness of such error-prone systems, as well as to increment their

reliability, safety and/or security. Techniques methods applicable in any step of the design and validation flow are key topics of this *Special Issue*, being its main objective **their application to ensure higher safety, security and reliability levels for IE used in pervasive well-being context**, and as a consequence **increasing user confidence in them**. This special issue aims to collect recent advances and showcase convincing examples, including best-practice applications in relevant domains. The general theme chosen includes the following **(non-exhaustive) list of topics**:

- Requirement specification
- Elicitation of user requirements
- Modelling notations and approaches
- Formal analysis and design
- Connected body sensors
- Human-centred design
- User acceptance
- Verification of system correctness
- Reliability of measurements and diagnosis
- Integration of modelling, specification and verification
- Integrated platforms
- Affective computing
- Quality assessment
- Technical frameworks and support tools
- Applications and case studies

If you are unsure whether your work would fit the scope of this special issue, please contact to the guest editors, by sending an email to fulvio.corno@polito.it and daniela.micucci@unimib.it.

Peer-review process:

All submitted papers must be original and will undergo a rigorous peer-review process with at least three reviewers. Please also note that only unpublished articles, which are not under consideration for publication elsewhere, or significantly expanded or updated versions of papers submitted to the *7th International Workshop on the Reliability of Intelligent Environments (WoRIE 2018)* will be considered for publication in this special issue.

Submission procedure:

Manuscripts should be prepared according to the *instructions for authors* of the ***Journal of Reliable Intelligent Environments*** and submitted through its editorial manager website: <https://www.editorialmanager.com/jrie/>. Authors should register and upload their manuscript text, tables, and figures, as well as subsequent revisions, through this website. When submitting a paper for this SI, please be sure to select the corresponding option from the *Choose Article Type* drop-down list. Thus, the submission will be managed in the review process for this SI instead of being considered as a regular paper submission to the journal.

A *notification of submission intent* would be appreciated. Please, send the preliminary title and a 200 word abstract of your intended submission to the Guest Editors (to fulvio.corno@polito.it and daniela.micucci@unimib.it) by 15 December 2018.

Timeline for submissions:

- Notification of submission intent: 15 December 2018
- Full paper submission for special issue: 31 January 2019
- Initial decision on full papers received: 28 February 2019
- Final decision on full papers: 27 March 2019
- Final papers due for special issue: 10 April 2019

- Special issue publication: June 2019



<http://www.springer.com/journal/40860>

Journal of Reliable Intelligent Environments

Editors-in-Chief: Augusto, J.C.; Coronato, A.

ISSN: 2199-4668 (print version)

ISSN: 2199-4676 (electronic version)

Journal no. 40860