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# Journal of Biomedical Informatics

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## Call for Papers

## Special Issue on Ambient Intelligence for Health Environments

### Due date for submissions: February 26, 2016

Ambient Intelligence (Aml) is an emerging paradigm in information technology [1], in which people are empowered through intelligent tools embedded in the surrounding environment and objects that are aware of their presence and context, and are sensitive, adaptive, and responsive to their needs, habits, gestures and emotions [2]. This shift in computing paradigms is enabled by the tremendous advancements in technology that make computing ubiquitous and is empowered by the demands of people to live in an interactive environment with technology that responds to their various needs [3,4]. One critical human need where Ambient Intelligence can be used is health care [5], to improve and sustain quality of life without increasing financial or care burdens [6]. While Ambient Intelligence in health applications is increasingly getting research momentum, it has not reached a level of full maturity. Reasons for this deficiency include the difficulty in working in multidisciplinary contexts and in dealing with a critical domain where errors are unacceptable.

Within this context, we encourage you to submit your articles for a special issue boosting healthcare-based Ambient Intelligent research by focusing on innovations not just on the infrastructure and technology required for achieving ambient intelligence in health, such as smart environments and wearable medical devices [7], but also on developing testing and verification techniques that make such innovations reliable [8].

The broader context of the special issue concerns new methods to mine, summarize and integrate the huge volume and diverse modalities of the structured and unstructured biomedical [9] and healthcare data [10] that can potentially lead to significant advances in the field.

More specifically, we are interested in papers that present methods focusing on accessing, extracting, mining, categorizing, summarizing, integrating and analyzing big datasets of diverse data types. Such data types may include genomic, proteomic, phenotypic, molecular (including -omics), physiological, anatomical, clinical, behavioral, environmental, and many other types of biological and biomedical data. They may also include data generated for other purposes (e.g., social media, search histories, and cell phone data).

### Topics:

- Methodologies for Health Interactions
- Awareness Techniques for Health Environments
- Ubiquitous and Pervasive Health (Protocols, Communications, Systems & Devices)
- Wireless Sensors Networks
- Methodological Adaptability for Health
- Data Models Administrative Methods (Cloud Computing)
- Middleware for Health Environments
- Methods for Everyday Computing in Health

- Smart Health Environments (Sensitive, Proactive and Adaptive Proposals)
- Computational Methods in Vital Signs Sensors (ECG, EMG, Temperature, Respiration, Blood Oxygen, Blood Pressure, etc.) or in Other Individual Daily Sensors (Accelerometers, Microphones, Gyroscopes, Locations, Bluetooth, WiFi, etc.)
- Health Frameworks Monitoring
- Health Reasoning and Decision Making
- Modelling Health Environments
- Activities Predictions and Recognition (Physical Activity, Gait Analysis, etc.)
- Security, Reliability, Energy Efficiency and Connectivity in Health Environments
- Automated Health Interventions
- Methods for Monitoring and Measuring Rehabilitation

JBI is particularly interested in publishing methodological reviews on topics relevant to special issues, and we accordingly encourage submissions of this type. In addition, JBI focuses on papers that introduce methodological innovations and tends not to publish papers that describe specific applications that utilize well established techniques, even if their use in a new context is novel. JBI also focuses on informatics issues, so papers dealing with new engineering approaches to constructing devices would not be appropriate for this issue. Please also note that only unpublished articles, or significantly expanded or updated versions of papers submitted to the 9th International Conference on Ubiquitous Computing and Ambient Intelligence (UCAml 2015) and the 7th International Work-conference on Ambient Assisted Living (IWAAL 2015), will be considered for publication in this special issue.

Questions regarding the topics of the special issue should be directed to Dr. José Bravo <<mailto:Jose.Bravo@uclm.es>>

### Peer-review process:

All submitted papers must be original and will undergo a rigorous peer-review process with at least two reviewers. All submissions should follow the guidelines for authors, available at the Journal of Biomedical Informatics web site (<http://www.journals.elsevier.com/journal-of-biomedical-informatics>). JBI's editorial policy is also outlined on that page (see expanded Aims and Scope) and will be strictly followed by the special issue reviewers.

### Submission process:

Authors must submit their papers by February 25, 2016 via the online Elsevier Editorial System (EES) at <http://ees.elsevier.com/jbi>. Authors should register and upload their text, tables, and figures, as well as subsequent revisions, through this website. Potential authors may contact the Publishing Services Coordinator in the

journal's editorial office (jbi@elsevier.com) for questions regarding this process.

## References

- [1] D.J. Cook, J.C. Augusto, V.R. Jakkula, Ambient intelligence: technologies, applications, and opportunities, *Pervasive Mobile Comput.* 5 (2009) 277–298.
- [2] G. Riva, Ambient intelligence in health care, *CyberPsychol. Behav.* 6 (2003) 295–300.
- [3] J. Bravo, A. Coronato, K. Curran, G. De Pietro, R. Qjushi, M. Sarrafzadeh, Editorial to the special section on ambient intelligence and assistive technologies for cognitive impaired people, *IEEE J. Biomed. Health Inform.* 18 (2014) 352.
- [4] N. Noury, Ambient intelligence might support increased longevity, *Conf. Proc. IEEE Eng. Med. Biol. Soc.* 2014 (2014) 1760–1764.
- [5] G. Acampora, D.J. Cook, P. Rashidi, A.V. Vasilakos, A survey on ambient intelligence in health care, in: *Proceedings of the IEEE Institute of Electrical and Electronics Engineers*, vol. 101, 2013, 2470–2494.
- [6] O. Rienhoff, From intensive care monitoring to personal health monitoring to ambient intelligence, *Stud. Health Technol. Inform.* 187 (2013) 3–12.
- [7] S. Kartakis, V. Sakkalis, P. Tournakakis, G. Zacharioudakis, C. Stephanidis, Enhancing health care delivery through ambient intelligence applications, *Sensors* 12 (2012) 11435–11450.
- [8] L. Pignolo, F. Riganello, G. Dolce, W.G. Sannita, Ambient intelligence for monitoring and research in clinical neurophysiology and medicine: the MIMERICA\* project and prototype, *Clin. EEG Neurosci.* 44 (2013) 144–149.
- [9] I. del Campo, K. Basterretxea, J. Echanobe, G. Bosque, F. Doctor, A system-on-chip development of a neuro-fuzzy embedded agent for ambient-intelligence environments, *IEEE Trans. Syst. Man Cybern. B Cybern.* 42 (2012) 501–512.
- [10] F.E. Martinez-Perez, J.A. Gonzalez-Fraga, J.C. Cuevas-Tello, M.D. Rodriguez, Activity inference for Ambient Intelligence through handling artifacts in a healthcare environment, *Sensors* 12 (2012) 1072–1099.
- [11] E. Kosta, O. Pitkanen, M. Niemela, E. Kaasinen, Mobile-centric ambient intelligence in health- and homecare-anticipating ethical and legal challenges, *Science Eng. Ethics* 16 (2010) 303–323.

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