

# Software Architectures for Context-Aware Smart Systems

## Special Issue of information And Software Technologies, Elsevier,

This special issue on software architectures for context-aware smart systems aims to outline the importance of the architectural aspects in the development of dynamic and mobile solutions, and their role in ensuring and improving the overall quality of the software.

Such solutions are aware at run-time of their execution environment. Further, they exploit this awareness to adapt predictively and reactively to the context and to provide smart services that meet the users' needs and ensure the required and expected quality. In context-aware smart systems, the decision process tends to move from design to run-time, where the context plays a key role in the system behavior. Software is expected to make wise use of the knowledge about its context at run-time.

The size and the complexity of context-aware smart software are increasing every day. Thus, software asks for innovative and enhanced software engineering, maintenance, and evaluation approaches and practices to address the continuously changing requirements and expectations of the IT and business world, as well as the evolution of the available solutions. In this context, software architecture defines the basic blocks to prepare and ensure the quality attributes of a system.

This special issue calls for contributions that identify and describe the issues and challenges raised by the development and the evolution of software systems that are context-aware, dynamic, autonomous, smart, adaptive, mobility-enabled, and self-managed from an architectural perspective. The software architecture establishes the fundamentals and the rules for the interaction, integration, communication, observation, and control aspects that should be addressed during the software development and maintenance phases. Furthermore, the special issue welcomes contributions concerning available research and industrial case studies and solutions, lessons learnt, addressed as well as open challenges in designing and developing software architectures for context-aware smart systems.

We call for original previously unpublished research and industrial papers. Further, we encourage the submission of extended versions of papers presented at the Workshop on Context-aware, Autonomous, and Smart Architectures (CASA 2017 - <https://casa2017.github.io/CASA-ECSA2017/>) co-located with the 11th European Conference on Software Architecture (ECSA 2017).

### Topics of Interest

The special issue on software architectures for context-aware smart systems calls for scientific contributions, as well as practical and industrial experience reports in any of the following areas, that include, but not limited to:

- software architectures: surveys, issues, challenges in context-aware smart systems;
- architecture description languages and frameworks for context-aware smart systems;
- architectural design patterns for context-aware smart systems;
- standards and reference models of software architectures for context-aware smart systems;
- model-driven engineering architectural approaches for context-aware smart systems;
- traditional and specific quality attributes for context-aware smart systems;
- mobility, flexibility, dynamicity, self-adaptivity vs. robustness, safety, security, privacy;
- business goals and quality requirements vs openness in context-aware smart systems;
- trade-offs management of quality attributes in context-aware smart systems;

- evaluation of software architectures for context-aware smart systems (e.g., architectural smells);
- technical debt and sustainability of software architectures for context-aware smart systems;
- context-awareness and situational-awareness from the software architecture point of view;
- architecting mobility in context-aware smart systems;
- autonomy and self-management issues for context-aware smart systems;
- evolution of legacy software architectures towards context-aware smart systems;
- software architectures for large-scale applications, i.e., Big Data, IoT, and Industry 4.0;
- case studies and industrial architectural approaches for context-aware smart systems.

## Important Dates (proposal)

30 April 2018:	Full paper submission
30 July 2018:	Author notification
15 September 2018:	Papers revisions
15 November 2018:	Author final notification
15 December 2018:	Final manuscript

## Submission Guidelines

All submissions should follow the journal submission guidelines, including maximum length requirements and having a structured abstract. The guidelines for authors can be found at: <https://www.elsevier.com/journals/information-and-software-technology/0950-5849/guide-for-authors>

All manuscripts submission and review will be handled by Elsevier Editorial System: <https://www.evis.com/profile/#/INF/SOF/login>. When submitting, please select the following article type: “**Special issue: Software Architecture for Context-aware Smart Solutions**”.

## Guest Editors

- Claudia Raibulet, University of Milano-Bicocca, Italy --- Email: raibulet@disco.unimib.it
- Khalil Drira, LAAS-CNRS, Université de Toulouse, France --- Email: khalil@laas.fr
- MariaGrazia Fugini, Politecnico di Milano, Italy --- Email: mariagrazia.fugini@polimi.it
- Patrizio Pelliccione, Chalmers University of Technology and University of Gothenburg, Sweden --- Email: patrizio.pelliccione@gu.se
- Tomas Bures, Charles University, Czech Republic --- Email: bures@d3s.mff.cuni.cz