



**Título:** Characterizing AAL Interoperability: An Empirical Study In Academic Literature and Software Repositories

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**Resumo:**

With the gradual increase in the population of older adults in the world, some initiatives have been created that use technologies and concepts from recent paradigms (e.g. Internet of Things and Ambient Intelligence) and are aimed at the well-being and care of the elderly population. One example is Ambient-Assisted Living (AAL). AAL can be defined as ``the use of Information and Communication Technologies in a person's daily living and working environment to enable

them to stay active longer, remain socially connected, and live independently into old age". The development of AAL systems presents several challenges and ramifications. One of the main examples is interoperability, defined as "the ability of two or more systems or components to exchange information and to use the information that has been exchanged". One way to provide support for the development of AAL systems is to summarize the existing approaches to the problem of interoperability, in its different types and levels. As well as establishing correlations between the strategies, subcharacteristics, architectural patterns, platform types, communication protocols, semantic and syntactic aspects, among others. A common solution for this is the Non-Functional Requirements catalogs, which allow the reuse of validated solutions and present their interdependencies and trade-offs. In this thesis proposal, two approaches were used to extract information about interoperability treatment strategies in AAL projects: academic literature and public software repositories. Based on results from a systematic mapping followed by a snowballing forward, academic studies were obtained regarding AAL systems that have interoperability as a requirement. Then, through Grounded Theory (GT), information about the characteristics of interoperability for AAL was extracted from the texts. Following the CORRELATE process, an interoperability catalog for AAL was constructed. The extraction of information about interoperability in projects available in public repositories is in progress. This mining should refine the information obtained from the catalog. In this way, this thesis proposal investigates the construction of a way to provide support to the development process of AAL systems with regard to the problem of interoperability.

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