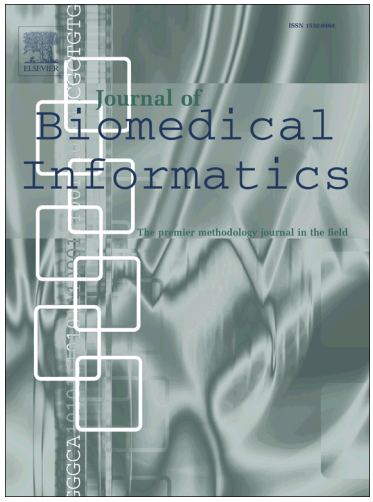

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An artificial intelligence framework for compensating transgressions and its application to diet management

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Abstract

Today, there is considerable interest in personal healthcare. The pervasiveness of technology allows to precisely track human behavior; however, when dealing with the development of an intelligent assistant exploiting data acquired through such technologies, a critical issue has to be taken into account; namely, that of supporting the user in the event of any transgression with respect to the optimal behavior. In this paper we present a reasoning framework based on Simple Temporal Problems that can be applied to a general class of problems,, which we called "cake&carrot problems", to support reasoning in presence of human transgression. The reasoning framework offers a number of facilities to ensure a smart management of possible "wrong behaviors" by a user to reach the goals defined by the problem.

This paper describes the framework by means of the prototypical use case of diet domain. Indeed, following a healthy diet can be a difficult task for both practical and psychological reasons and dietary transgressions are hard to avoid. Therefore, the framework is tolerant to dietary transgressions and adapts the following meals to facilitate users in recovering from such transgressions. Finally, through a simulation involving a real hospital menu, we show that the framework can effectively achieve good results in a realistic scenario.

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