

VI Workshop on Agents Applied in Health Care
(Held at eHealth 2010 International Conference)

Casablanca, Morocco, December 14th 2010

09:00-10:30 e-Health conferences Plenary Session

10:30-11:00 Coffee break

11:00-12:30 Session 1

Cortés, U., Annicchiarico, R., *To share or not to share SHARE-it : Lessons Learnt*

The purpose of this position paper is to discuss the authors' reflections on the use of Assistive Technologies (AT) to support user's autonomy to perform the necessary Activities of Daily Living (ADL). In special, we will address the use of Agent-based robotic services

Ruan, J. MacCaull, W., Jewers, H., *Agent-based Careflow and Monitoring for Patient-centred Palliative Care.*

In this paper, we propose the use of an agent-based architecture to enhance workflow system capacity to support inter-professional, patient-centred palliative care delivery. This paper outlines the concept of palliative care and describes *how* agents can be used to assist care providers to address the needs of the patient and family. Agents are described in terms of the services they provide, and the dependencies among them (which determine the information flow, facilitating the communication and collaboration among the patient and care providers). We present how this architecture integrates with a healthcare workflow system and discuss the issues of work assignment, scheduling and monitoring. A logic based framework for monitoring information generated in the course of care is provided.

Rubio, C., Annicchiarico, R., Barrué, C., Cortés, U., Sánchez-Marrè, M., Caltagirone, C., *iTutorials for the Aid of Cognitively Impaired Elderly Population*

This paper introduces the *shared autonomy* concept on the context of Assistive Technologies (AT), in particular using an Intelligent Tutoring System (ITS) to support the performance of Activities of Daily Living (ADLs) while maintaining the intrinsic abilities of cognitively impaired users and relieving their respective caregivers from full time assistance. The key feature of this tutoring system is its capability to adjust the service to the user's medical profile and his/her environmental context. We present the obtained empiric results while designing and evaluating the service on diverse scenarios with real elder volunteers having a varied range of disability profiles.

12:30-14:00 Lunch

14:00-15:30 Session 2

Lluch-Ariet, M., Pegueroles-Valles, J., THE MOSAIC SYSTEM - A *clinical data exchange system with multilateral agreement support*

Multi-agent systems and Interoperability standards are facilitating the data transfer among different clinical centres around the world. As more and more data become available, the task of accessing and exploiting the large number of distributed repositories to extract useful knowledge becomes increasingly complex. Moreover, accessing to a certain data set in a federated data warehouse may have the constrain of delivering another data set, and multilateral agreements for data exchange among different nodes may solve it. Such kind of agreements that involve several parties may be very complex or impossible to be solved manually. Current systems for clinical data sharing do not support multilateral agreements for the exchange of the data and in general do not solve the above-mentioned problem. MOSAIC, the work presented here, intends to give a modular and efficient solution to the clinical data exchange problem with multilateral agreements.

The proposed system takes advantage of agent based systems and the current standardised Interaction Protocols together with the current protocols for clinical data transfer, in order to build a consistent system allowing the clinical centers to access to the desired data.

O'Reilly, R. D., Healy, P. D., Morrision, J. P., Boylan, G. B., An Agent Framework for the Analysis of Streaming Physiological Data

An agent framework that assists with the interpretation of streaming physiological data is presented. The framework operates as a module within an existing remote monitoring system for streaming physiological data. Agents complement the remote monitoring system by enhancing the users' view of the signals through the addition of annotations and the creation of derived views of the signals.

Gomez-Sebastià, I., Garcia-Gasulla, D., Barrué, C., Vázquez, J., Cortés, U., ALIVE meets SHARE-it : An Agent-Oriented Solution to Model Organisational and Normative Requirements in Assistive Technologies

Over aging population is a challenge that modern societies will have to face in the near future. Assistive Technologies are an application area for a wide variety of Artificial Intelligence methods and tools to support people in their activities of daily living. But most approaches do only centre in the direct interaction between the user and the assistive tool, without taking into consideration the important role that other actors (caregivers, relatives) may have in the user activities, nor they explicitly reflect the norms and regulations that apply in such scenarios. In this paper we present an approach to the development of Assistive Technologies, which uses organisational and normative elements to ease the design of both the social network around the user and their expected behavioural patterns.

15:30-16:00 Coffee break

16:00-17:30 Session 3

Billiau, G., Chang, C.F., Ghose, A., Miller A. A., Support-Based Distributed Optimisation: An Approach To Radiotherapy Scheduling

The public health system is plagued by inefficient use of resources. Frequently the results are lengthy patient treatment waiting times. The use of SOA Multiagent and distributed computing technologies can provide a solution to address this problem. While many solutions for patient scheduling in health systems exist, few of them attempt to deal with the problem of coordination between autonomous departments. Different patient scheduling systems within each department and the need for patient privacy have complicated and hindered coordination. External coordination of schedules between hospitals and across different area health services compounds the inefficiency. In this study, we describe the use of Support Based Distributed Optimisation algorithm, which is a distributed dynamic constraint optimisation algorithm designed specifically to generate and optimise schedules across autonomous units, in coordinating treatment schedules. This solution takes account of patient preferences and resource utilisation to find a pareto-optimal solution. We demonstrate this by outlining our approach to modelling the problem of scheduling radiotherapy patients across several independent oncology units as a dynamic distributed constraint optimisation problem