



Healthcare Computer Reasoning Addressing Chronically Ill Societies Using IoT: Deep Learning AI to the Rescue of Home-Based Healthcare ☺

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Abstract

The authors present a proposal to develop intelligent assisted living environments for home based healthcare. These environments unite the chronical patient clinical history sematic representation with the ability of monitoring the living conditions and events recurring to a fully managed Semantic Web of Things (SWoT). Several levels of acquired knowledge and the case based reasoning that is possible by knowledge representation of the health-disease history and acquisition of the scientific evidence will deliver, through various voice based natural interfaces, the adequate support systems for disease auto management but prominently by activating the less differentiated caregiver for any specific need. With these capabilities at hand, home based healthcare providing becomes a viable possibility reducing the institutionalization needs. The resulting integrated healthcare framework will provide significant savings while improving the generality of health and satisfaction indicators.

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Nomenclature

AAL: Ambient Assisted Living
ACE: Attempto Controlled English
AI: Artificial Intelligence
BAN: Body Area Network
CAT: Computer Aided Translation
CIDERS: Clinical Integrated Discourse Extended Representation Structure
CNL: Controlled Natural Language
CORE: Clinical Observations Recording and Encoding
CPR: Computer Based Patient Record Ontology
CQA: Clinical Question Answering
DO: Disease Ontology
DR: Discourse Reasoning
DRS: Discourse Representation Structure
EHR: Electronic Health Record
FOL: First Order Logic
GS: Gold Standard
ICF: International Classification of Functionality
IE: Information Extraction
IoT: Internet of Things
KAB: Knowledge Acquisition Bottleneck
KR: Knowledge Representation
LAN: Local Area Network
MEMS: Micro-Electro Mechanical Systems
NLP: Natural Language Processing
OGCP: Ontology for General Clinical Practice
OGMS: Ontology for General Medical Science
OWL2: Web Ontology Language Version 2
SNOMED-CT: Systematized Nomenclature of Medicine - Clinical Terms
SOAP: Subjective, Objective, Assessment, Plan
TM: Translation Memories
WAN: Wide Area Network
WBAN: Wireless Body Area Network
WHO: World Health Organization
WS: Web Services
WSD: Word Sense Disambiguation

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