

Intelligent Agents: A Physics Education Opportunity in Latin-America



D. Sánchez-Guzmán, César Mora, R. García-Salcedo

Centro de Investigación en Ciencia Aplicada y Tecnología Avanzada, Instituto Politécnico Nacional, Legaria No.694, col. Irrigación, Miguel Hidalgo, CP 11500, México D. F.

E-mail: dsanchez@ipn.mx; cmoral@ipn.mx

(Received 28 March 2009; accepted 30 April 2009)

Abstract

Intelligent Agents are being applied in a wide range of processes and everyday applications. Their development is not new, in recent years they have had an increased attention and design in learning and as mentoring tools. In this paper we discuss the definition of what an intelligent agent is; how they are applied; how they look like; recent implementations of agents; agents as support in learning process; their state in Latin-American countries and future developments and trends that will permit a better communication between people and agents.

Keywords: Intelligent Agent, Software Development, Tutoring System, Web-based Systems, Artificial Intelligence.

Resumen

Los Agentes Inteligentes en la actualidad se implementan en una gran cantidad de procesos y aplicaciones. El desarrollo de estos no es nuevo, en años recientes se ha incrementado el desarrollo y diseño como herramientas de tutoría. En el presente artículo se presenta la definición de lo que es un agente inteligente, sus aplicaciones más frecuentes, el soporte que brindan en el proceso enseñanza aprendizaje; así como el estado actual en países Latinoamericanos. Se presenta también el desarrollo y las tendencias de estos agentes que permitirán una mejor comunicación entre las personas y otros agentes.

Palabras Clave: Agente Inteligente, Desarrollo de Software, Sistema Tutor, Sistemas Basados en Web, Inteligencia Artificial.

PACS: 01.30.Xx; 01.40.Fk; 01.50H-; 07.05Mh; 07.05.Rm

ISSN 1870-9095

I. INTRODUCTION

Current technologies have been applied in many social and personal processes. Now computers are being implemented in many activities, like personal web pages, on-line systems for government, factory systems, education systems, etc. Internet have evolve from a simple text-based scheme to a multimedia-based scheme; before we had Hyper Text Transfer Protocol (HTTP) as the default protocol and Hyper Text Mark-up Language (HTML) as the displaying tool in a browser, like Internet Explorer or Netscape, both to transfer information between enterprises, people and automated systems, using the World Wide Web (WWW); it did not pass many time until that technology becomes obsolete, it was necessary to create and enrich the Web content, not only by displaying more information and content; it was necessary to give to the information order and coherence, because we were falling in an accumulation of the information process and the content was not classified and ordered correctly.

Then there appeared technologies for solve many problems that Internet was suffering, like extensible mark-up language (XML), Personal Home Pages (PHP) as an

open project, Active Server Pages (ASP) from Microsoft Corp., Java Server Pages (JSP) from Java Technologies, and others. These technologies help us to create web content with more order and coherence, and to facilitate the manipulation of information. Also there have appeared tools for managing, controlling and searching inside all the amounts of information, then we have the development of Data Bases (DB) and Data Bases Management Systems (DBMS), the exponential growth of information had accumulated as many information as the entire life of each person in the world, nowadays we can talk that information has an amount of PetaBytes (PB) or ExaBytes (EB) that is many information for administrating, maintaining and searching, in such amount of information there were developed software robots (now know as 'softbot') and techniques for controlling all that information, the result that have been being development where Data Warehousing Systems, Data Mining Systems and others for compliment that kind of functions.

The merge of technologies, techniques and methodologies have created solutions that directly applied on social processes, this permits to expands solutions in a quickly way. As an addition, the boom of