Medical Information Science

FERENCE The premier reference source for healthcare technology and medical informatics research

New Release

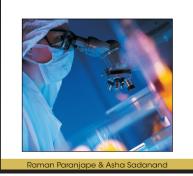
August 2009

Multi-Agent Systems for Healthcare Simulation and Modeling: Applications for System Improvement

PREMIER REFERENCE SOURCE

Multi-Agent Systems for Healthcare Simulation and Modeling

Applications for System Improvement



"We are truly fortunate to have such a competent and diverse list of contributing authors for this book. The works presented span the wide breadth of agent application in health care looking at both practical and theoretical issues."

- Raman Paranjape, University of Regina, Canada

Edited by: Raman Paranjape, University of Regina, Canada & Asha Sadanand, University of Guelph, Canada

> 13-digit ISBN: 978-1-60566-772-0 348 pages; 2010 Copyright Price: US \$345.00 (hardcover*) Perpetual Access: US \$515.00 Print + Perpetual Access: US \$690.00 Illustrations: figures, tables (8 1/2" x 11") **Translation Rights: World**

*Paperback is not available.

The modeling of healthcare components and systems in order to develop a complete understanding of component interactions is one of the more challenging simulation and modeling problems for software agent systems.

Multi-Agent Systems for Healthcare Simulation and Modeling: Applications for System Improvement provides relevant theoretical frameworks and the latest empirical research findings used by medical professionals in the implementation of multi-agent systems. This Premier Reference Source disseminates understanding on the strategic role of systems modeling in healthcare, a valuable resource to academicians, researchers, and field practitioners.

Subject:

Health Information Systems; Artificial Intelligence; Medical Technologies

Market:

This essential publication will be invaluable to academic, research, and medical libraries as well as those interested in the use of multi-agent modeling systems in healthcare. Healthcare professionals, information systems designers, application developers, and healthcare informatics researchers will find this resource provides comprehensive theories, trends, and practices in multi-agent systems use in the healthcare setting. Students and educators in healthcare systems design and healthcare provision will also benefit.



Excellent addition to your library! Recommend to your acquisitions librarian. www.info-sci-ref.com

Multi-Agent Systems for Healthcare Simulation and Modeling: Applications for System Improvement

Edited by: Raman Paranjape, University of Regina, Canada; Asha Sadanand, University of Guelph, Canada

Table of Contents

Section I: Overview of Health Care System Issues Chapter I: Current Practices in Select Healthcare Systems

Venkat Sadanand, University of Saskatchewan, Canada Chapter II: Economic Efficiency and the Canadian Health Care System

Asha B. Sadanand, University of Guelph, Canada Chapter III: A Review of Recent Contribution in Agent-Based Health Care Modeling

Simerjit Gill, University of Regina & TRLabs Regina, Canada

Raman Paranjape, University of Regina & TRLabs Regina, Canada

Section II: Health Care Modeling Systems Chapter IV: Agency in Health Care System Modeling and Analysis

Raman Paranjape, University of Regina & TRLabs Regina, Canada

Simerjit Gill, University of Regina & TRLabs Regina, Canada

Chapter V: Operating Room Simulation and Agent-Based Optimization

Q. Peng, University of Manitoba, Canada

Q. Niu, University of Manitoba, Canada

Y. Xie, University of Manitoba, Canada

T. ElMekkawy, University of Manitoba, Canada

Chapter VI: Building a Health Care Multi-Agent Simulation System with Role-Based Modeling

Xiaoqin Zhang, University of Massachusetts Dartmouth, USA

Haiping Xu, University of Massachusetts Dartmouth, USA

Bhavesh Shrestha, University of Massachusetts Dartmouth, USA

Section III: Physician/Patient Support Systems

Chapter VII: HeCaSe2: A Multi-Agent System that Automates the Application of Clinical Guidelines David Isern, University Rovira i Virgili, Spain

Antonio Moreno, University Rovira i Virgili, Spain Chapter VIII: An Agent-Based Modeling System for Wellness Luigi Benedicenti, University of Regina, Canada Chitsutha Soomlek, University of Regina, Canada Chapter IX: Using Probabilistic Neural Network to Select a Medical Specialist Agent Vijay Kumar Mago, DAV College, India M. Syamala Devi, Panjab University, India Ajay Bhatia, CTIM&IT, India Ravinder Mehta, Mehta Childcare Center, India Chapter X: A Multi-Agent Simulation of Kidney Function for Medical Education Kin Lik Wang, University of Hawaii, USA Nancy E. Reed, University of Hawaii, USA Dale S. Vincent, University of Hawaii, USA Section IV: Population Modeling Systems Chapter XI: Role of Multi-agents System in Creation of Collaborative Environments within Mental Health Domain Maja Hadzic, Curtin University of Technology, Australia Darshan S. Dillon, Curtin University of Technology, Australia Chapter XII: Multi-Agent Systems in Developing Countries Dean Yergens, University of Manitoba, Canada Julie Hiner, University of Calgary, Canada Jörg Denzinger, University of Calgary, Canada Chapter XIII: Projecting Health Care Factors into Future Outcomes with Agent-Based Modeling Georgiy Bobashev, RTI International, USA

Andrei Borshchev, XJ Technologies, Russia

About the Editors:

Raman B. Paranjape completed his BSc (1981), MSc (1984), and PhD (1989) degrees at the University of Alberta (Canada). His research interests are in both physical and software agent systems. Research in physical systems has focused on the development of sensor systems and new technologies in image and signal processing for real world application in robotics and automated systems for team formation using both passive and active sonar arrays. Research in software agents is focused on analysis and retrieval of medical data from distributed databases and modeling of agent and human societies. Dr. Paranjape has worked as research scientist, software engineer, project leader, and project manager in Canadian industry. He joined the University of Regina in 1997, and is currently a professor of electronic systems engineering and the Director of the Centre for Sustainable Communities.

Asha B. Sadanand completed a BSc (Honors) in mathematics at the University of Alberta (Canada). She then completed a master's degree in economics at the University of Alberta (Canada). She went on to complete a PhD in microeconomics at the California Institute of Technology (USA). While she was at the California Institute of Technology she worked on designing market mechanisms for resource allocation and property rights. She is currently a professor of economics at the University of Guelph. She specializes in microeconomic theory, information economics, and game theory. In addition, she is interested in industrial organization, experimental economics, and law and economics.

Excellent addition to your library! Recommend to your acquisitions librarian.

www.info-sci-ref.com