

## Online Library Fuzzy Systems In Medicine By Piotr S Szczepaniak

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### KEY=S - ARELY SNYDER

### FUZZY SYSTEMS IN MEDICINE

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**Springer Science & Business Media** Provides an introduction to the fundamental concepts of fuzziness together with a compilation of recent advances in the application to medicine. The tutorials in the first part of the book range from basic concepts through theoretical frameworks to rule simplification through data clustering methodologies and the design of multivariate rule bases through self-learning by mapping fuzzy systems onto neural network structures. The case studies which follow are representative of the wide range of applications currently pursued in relation to medicine. The majority of applications presented in this book are about bridging the gap between low-level sensor measurements and intermediate or high-level data representations. The book offers a comprehensive perspective from leading authorities world-wide and provides a tantalising glimpse into the role of sophisticated knowledge engineering methods in shaping the landscape of medical technology in the future.

### FUZZY SYSTEMS IN MEDICINE

**Physica** Provides an introduction to the fundamental concepts of fuzziness together with a compilation of recent advances in the application to medicine. The tutorials in the first part of the book range from basic concepts through theoretical frameworks to rule simplification through data clustering methodologies and the design of multivariate rule bases through self-learning by mapping fuzzy systems onto neural network structures. The case studies which follow are representative of the wide range of applications currently pursued in relation to medicine. The majority of applications presented in this book are about bridging the gap between low-level sensor measurements and intermediate or high-level data representations. The book offers a comprehensive perspective from leading authorities world-wide and provides a tantalising glimpse into the role of sophisticated knowledge engineering methods in shaping the landscape of medical technology in the future.

### FUZZY LOGIC IN MEDICINE

**Physica** To say that Fuzzy Logic in Medicine, or FLM for short, is an important addition to the literature of fuzzy logic and its applications, is an understatement. Edited by two prominent informaticians, Professors S. Barro and R. Marin, it is one of the first books in its field. Between its covers, FLM presents authoritative expositions of a wide spectrum of medical and biological applications of fuzzy logic, ranging from image classification and diagnostics to anaesthesia control and risk assessment of heart diseases. As the editors note in the preface, recognition of the relevance of fuzzy set theory and fuzzy logic to biological and medical systems has a long history. In this context, particularly worthy of note is the pioneering work of Professor Klaus Peter Adlassnig of the University of Vienna School of Medicine. However, it is only within the past decade that we began to see an accelerating growth in the visibility and importance of publications falling under the rubric of fuzzy logic in medicine and biology - a leading example of which is the Journal of the Biomedical Fuzzy Systems Association in Japan. Why did it take so long for this to happen? First, a bit of history.

### FUZZY SETS

### THEORY AND APPLICATIONS

### ADVANCES IN INTELLIGENT WEB MASTERING

### PROCEEDINGS OF THE 5TH ATLANTIC WEB INTELLIGENCE CONFERENCE - WIC'2007, FONTAINEBLEAU, FRANCE, JUNE 25 - 27, 2007

**Springer Science & Business Media** This book contains papers presented at the 5th Atlantic Web Intelligence Conference, AWIC'2007, held in Fontainebleau, France, in June 2007, and organized by Esigete!, Technical University of Lodz, and Polish Academy of Sciences. It includes reports from the front of diverse fields of the Web, including application of artificial intelligence, design, information retrieval and interpretation, user profiling, security, and engineering.

### COMPUTER RECOGNITION SYSTEMS 3

**Springer Science & Business Media** This book presents latest results in computer recognition systems, pattern recognition, machine learning, web and data mining. It includes coverage of image processing and computer vision; speech and word recognition; and medical applications.

### ADVANCES IN INTELLIGENT WEB MASTERING - 3

### PROCEEDINGS OF THE 7TH ATLANTIC WEB INTELLIGENCE CONFERENCE, AWIC 2011, FRIBOURG, SWITZERLAND, JANUARY, 2011

**Springer Science & Business Media** The Atlantic Web Intelligence Conference brings together scientists, engineers, computer users, and students to exchange and share their experiences, new ideas, and research results about all aspects (theory, applications and tools) of intelligent methods applied to Web based systems, and to discuss the practical challenges encountered and the solutions adopted. Previous AWIC events were held in Spain - 2003, Mexico - 2004, Poland - 2005, Israel - 2006, France - 2007 and Czech Rep. - 2009. The present 7th Atlantic Web Intelligence Conference (AWIC'2011) was held during January 26-28, 2011, at the University of Applied Sciences of Fribourg, Switzerland. AWIC2011 is organized by the Multimedia Information System Group (MISG), Institute of the Technologies of Information and Communication (iTIC) of the University of Applied Sciences of Fribourg.

### AMERICAN BOOK PUBLISHING RECORD

### ADVANCES IN WEB INTELLIGENCE

### FIRST INTERNATIONAL ATLANTIC WEB INTELLIGENCE CONFERENCE, AWIC 2003, MADRID, SPAIN, MAY 5-6, 2003, PROCEEDINGS

**Springer** We are pleased to present the proceedings of the 2003 Atlantic Web Intelligence Conference, AWIC 2003. The conference was located in Madrid, Spain during May 5-6, 2003, organized locally by the Technical University of Madrid. AWIC 2003 aimed to be the first of a series of conferences on Web Intelligence, to be celebrated annually, alternatively in Europe and America, starting in Madrid. It was born as an activity of the recently created WIC-Poland Research Centre and the WIC-Spain Research Centre, both belonging to the Web Intelligence Consortium (WIC) (<http://wi-consortium.org>). AWIC 2003 was supported with grants from the Spanish Ministry for Science and Technology and the European Network of Excellence in Knowledge Discovery, KDNNet. AWIC 2003 brought together scientists, engineers, computer users, and students to exchange and share their experiences, new ideas, and

research results about all aspects (theory, applications, and tools) of artificial intelligence techniques applied to Web-based systems, and to discuss the practical challenges encountered and the solutions adopted. Almost 70 contributions were submitted. After a preliminary evaluation, 60 of these papers were accepted to the conference and were assigned at least two reviewers from the international program committee. Out of this 60, 33 were conditionally accepted, and 32 of them were finally accepted after the conditions set by the reviewers had been met, which resulted in an acceptance ratio of 45%.

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## EXPERT SYSTEMS AND FUZZY SYSTEMS

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**Benjamin-Cummings Publishing Company** *Exact and inexact reasoning in knowledge engineering; Fuzzy sets; knowledge representation; Approximate reasoning; Knowledge engineering in decision support systems; Knowledge engineering in management expert systems; The categorial analysis of logic; Bibliography; Index.*

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## NEW TRENDS IN FUZZY SYSTEMS

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**World Scientific** *The developments of fuzzy systems and fuzzy logic is permeating through the diverse branches of science where uncertainty has to be considered laying on the foundations and applicative developments. CIFT and MEPP conferences have been held in different venues in Scandinavia and Italy since 1990, and have stimulated the attention from academia and industry toward the novelties introduced by fuzzy logic and fuzzy systems theory. The papers presented in this volume are concerned with a wide vision of modern perspectives of science. These cover research areas such as management, financial and economic applications, urbanism and ecology, astronomical engineering, medical diagnosis and imaging, and human behavior. Contents: Retrieving Documents from Multiple Information Sources (R Yager & A Rybalov) Basic Principles of Rough Set Analysis (B Matarazzo) Conditional Measures: Old and New (G Coletti & R Scozzafava) Application of a New Fuzzy Identification Algorithm for the Control of a DC to DC Converter (A Luciano et al) Fuzzy Logic and the Engineering of Quality in Electronic Products (B Bosacchi) On Some Order Structures in Fuzzy Modelling (M Fedrizzi et al) Fuzzy Control for Medicine: State of the Art and New Perspectives (S Giove) The Generalised Perceptron is a Fuzzy Neuron and a Fuzzy Rule (L Kallin & P Eklund) Application of MEP-Based Fuzzy Clustering to the Segmentation of Multivariate Medical Images (F Masulli et al) and other papers* *Readership: Students, engineers, and researchers in fuzzy systems, artificial intelligence, systems/knowledge engineering, biomedical engineering, civil engineering, applied mathematics, materials science, economics/finance and management. keywords: Fuzzy Logic; Fuzzy Modeling; Fuzzy Rule; Fuzzy Clustering*

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## THE ... IEEE INTERNATIONAL CONFERENCE ON FUZZY SYSTEMS PROCEEDINGS

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## FUZZY LOGIC AND MATHEMATICS

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## A HISTORICAL PERSPECTIVE

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**Oxford University Press** *The term "fuzzy logic," as it is understood in this book, stands for all aspects of representing and manipulating knowledge based on the rejection of the most fundamental principle of classical logic---the principle of bivalence. According to this principle, each declarative sentence is required to be either true or false. In fuzzy logic, these classical truth values are not abandoned. However, additional, intermediate truth values between true and false are allowed, which are interpreted as degrees of truth. This opens a new way of thinking---thinking in terms of degrees rather than absolutes. For example, it leads to the definition of a new kind of sets, referred to as fuzzy sets, in which membership is a matter of degree. The book examines the genesis and development of fuzzy logic. It surveys the prehistory of fuzzy logic and inspects circumstances that eventually lead to the emergence of fuzzy logic. The book explores in detail the development of propositional, predicate, and other calculi that admit degrees of truth, which are known as fuzzy logic in the narrow sense. Fuzzy logic in the broad sense, whose primary aim is to utilize degrees of truth for emulating common-sense human reasoning in natural language, is scrutinized as well. The book also examines principles for developing mathematics based on fuzzy logic and provides overviews of areas in which this has been done most effectively. It also presents a detailed survey of established and prospective applications of fuzzy logic in various areas of human affairs, and provides an assessment of the significance of fuzzy logic as a new paradigm.*

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## COMPUTATIONAL INTELLIGENCE AND APPLICATIONS

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**Physica** *The material presented in the book is divided into two main parts: Keynotes, and Case Studies. Five keynotes written by W. Pedrycz, D. Dubois and H. Prade, M.M. Gupta, P.M. Frank, and T. Kaczorek deal with: introduction into the concept and basic technologies of computational intelligence (CI), role of fuzzy logic in information engineering, paradigms of fuzzy neural computing, intelligent methods in fault diagnosis of technical plants, and with models of two-dimensional (2D) systems which are useful in analysis of methods manifesting the learning ability, respectively. The second part provides the reader with a sampling of various applications of the methods (neural networks, genetic algorithms, fuzzy, and evolutionary systems) being the building blocks of the CI. However, a few contributions exceed this rather stiff frame of CI-definition.*

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## MEDICAL COMPUTING AND APPLICATIONS

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## JOURNAL OF MEDICAL SYSTEMS

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## FUZZY CONTROL AND MODELING

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## ANALYTICAL FOUNDATIONS AND APPLICATIONS

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**Wiley-IEEE Press** *The emerging, powerful fuzzy control paradigm has led to the worldwide success of countless commercial products and real-world applications. Fuzzy control is exceptionally practical and cost-effective due to its unique ability to accomplish tasks without knowing the mathematical model of the system, even if it is nonlinear, time varying and complex. Nevertheless, compared with the conventional control technology, most fuzzy control applications are developed in an ad hoc manner with little analytical understanding and without rigorous system analysis and design. Fuzzy Control and Modeling is the only book that establishes the analytical foundations for fuzzy control and modeling in relation to the conventional linear and nonlinear theories of control and systems. The coverage is up-to-date, comprehensive, in-depth and rigorous. Numeric examples and applications illustrate the utility of the theoretical development. Important topics discussed include: Structures of fuzzy controllers/models with respect to conventional fuzzy controllers/models Analysis of fuzzy control and modeling in relation to their classical counterparts Stability analysis of fuzzy systems and design of fuzzy control systems Sufficient and necessary conditions on fuzzy systems as universal approximators Real-time fuzzy control systems for treatment of life-critical problems in biomedicine Fuzzy Control and Modeling is a self-contained, invaluable resource for professionals and students in diverse technical fields who aspire to analytically study fuzzy control and modeling.*

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## PC/COMPUTING

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## BIO\*MEDICAL INFORMATICS

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## ONE DISCIPLINE : THE ANNUAL SYMPOSIUM OF THE AMERICAN MEDICAL INFORMATICS ASSOCIATION : PROCEEDINGS, NOVEMBER 9-13, 2002, HENRY B. GONZALEZ CONVENTION CENTER, SAN ANTONIO, TX

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## PROCEEDINGS OF THE 15TH IEEE SYMPOSIUM ON COMPUTER-BASED MEDICAL SYSTEMS

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## (CBMS 2002) : 4-7 JUNE, 2002, MARIBOR, SLOVENIA

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**IEEE** *Annotation Papers from a June 2002 symposium address recent advances in intelligent medical systems, medical systems, data management, data mining, signal processing, software systems and agents, multimedia and visualization, knowledge representation, image processing, Web-based systems and frameworks, and management of image databases. Specific topics include efficiency enhancement of rule-based expert systems, protecting medical data for analyses, mining a diabetes database with decision trees and association rules, and testing medical software. Other subjects are structured speech input for clinical data collection, 3D reconstruction of abdominal aortic aneurysms, and data mining problems in medicine. There is no subject index. Annotation copyrighted by Book News, Inc., Portland, OR.*

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**KNOWLEDGE-BASED INTELLIGENT INFORMATION AND ENGINEERING SYSTEMS**


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**... INTERNATIONAL CONFERENCE, KES ... : PROCEEDINGS**


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**ELECTRONICSWEEK**


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**NUCLEAR MEDICINE IN CLINICAL DIAGNOSIS AND TREATMENT**


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Completely revised and updated, the 2nd Edition of this unique 2 volume text provides the most extensive and up-to-date coverage of the therapeutic applications of nuclear medicine. Serves as an authoritative and comprehensive guide to the role of nuclear medicine in daily clinical practice. Over 1700 superb illustrations support the text and demonstrate normal and abnormal images, with examples of rare conditions.

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**MEDICAL INFORMATICS EUROPE '97**


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**MATHEMATICAL REVIEWS**


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**CUMULATED INDEX TO THE BOOKS**


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**APPROXIMATE REASONING IN DECISION ANALYSIS**


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North Holland

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**POLONICA ZAGRANICZNE**


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**THE SKEPTICAL INQUIRER**


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**INTELLIGENT CONTROL SYSTEMS AND SIGNAL PROCESSING 2003**


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**(ICONS 2003) ; A PROCEEDINGS VOLUME FROM THE IFAC INTERNATIONAL CONFERENCE, FARO, ALGARVE, PORTUGAL, 8-11 APRIL 2003**


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**Pergamon Press** **KEY FEATURES:** The first IFAC conference and thus proceedings to be specifically devoted to this field Presents the findings of experts and practitioners from the major soft- computing themes Provides an overview of the theory and applications of intelligent control systems and signal processing Intelligent control systems and signal processing 2003 contains the selection of papers presented at the IFAC International Conference on Intelligent Control systems and Signal Processing (ICONS) 2003. The conference was sponsored by the most important organizations in the field, among them were the Institute of Electrical and Electronic Engineers (IEEE), and the Control Systems Society (CSS) This proceedings volume contains 98 papers, with three separate reviewers having reviewed all papers, including six plenary lectures given by leading experts in the field.

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**VERZEICHNIS LIEFERBARER BÜCHER**


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**FUZZY COGNITIVE MAPS**


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**ADVANCES IN THEORY, METHODOLOGIES, TOOLS AND APPLICATIONS**


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**Springer** This important edited volume is the first such book ever published on fuzzy cognitive maps (FCMs). Professor Michael Glykas has done an exceptional job in bringing together and editing its seventeen chapters. The volume appears nearly a quarter century after my original article "Fuzzy Cognitive Maps" appeared in the International Journal of Man-Machine Studies in 1986. The volume accordingly reflects many years of research effort in the development of FCM theory and applications—and portends many more decades of FCM research and applications to come. FCMs are fuzzy feedback models of causality. They combine aspects of fuzzy logic, neural networks, semantic networks, expert systems, and nonlinear dynamical systems. That rich structure endows FCMs with their own complexity and lets them apply to a wide range of problems in engineering and in the soft and hard sciences. Their partial edge connections allow a user to directly represent causality as a matter of degree and to learn new edge strengths from training data. Their directed graph structure allows forward or what-if inferencing. FCM cycles or feedback paths allow for complex nonlinear dynamics. Control of FCM nonlinear dynamics can in many cases let the user encode and decode concept patterns as fixed-point attractors or limit cycles or perhaps as more exotic dynamical equilibria. These global equilibrium patterns are often "hidden" in the nonlinear dynamics. The user will not likely see these global patterns by simply inspecting the local causal edges or nodes of large FCMs.

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**ENCYCLOPEDIA OF ARTIFICIAL INTELLIGENCE**


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**IGI Global** "This book is a comprehensive and in-depth reference to the most recent developments in the field covering theoretical developments, techniques, technologies, among others"--Provided by publisher.

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**INFORMATION TECHNOLOGIES IN BIOMEDICINE, VOLUME 3**


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**Springer Science & Business** New computerized approaches to various problems have become critically important in healthcare. Computer assisted diagnosis has been extended towards a support of the clinical treatment. Mathematical information analysis, computer applications have become standard tools underpinning the current rapid progress with developing Computational Intelligence. A computerized support in the analysis of patient information and implementation of a computer aided diagnosis and treatment systems, increases the objectivity of the analysis and speeds up the response to pathological changes. This book presents a variety of state-of-the-art information technology and its applications to the networked environment to allow robust computerized approaches to be introduced throughout the healthcare enterprise. Image analysis and its application is the traditional part that deals with the problem of data processing, recognition and classification. Bioinformatics has become a dynamically developed field of computer assisted biological data analysis. This book is a great reference tool for scientists who deal with problems of designing and implementing processing tools employed in systems that assist the radiologists and biologists in patient data analysis.

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**EXPERT SYSTEMS**


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**A SOFTWARE METHODOLOGY FOR MODERN APPLICATIONS**


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**IEEE Computer Society** An anthology of papers on theory and use of the technology. Derived from IEEE and the books and journals of other publishers, they are up to eight years old. No index. Annotation copyright Book News, Inc. Portland, Or.

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**APPLICATIONS AND SCIENCE OF NEURAL NETWORKS, FUZZY SYSTEMS, AND EVOLUTIONARY COMPUTATION**


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**EIGHTEENTH ANNUAL SYMPOSIUM ON COMPUTER APPLICATIONS IN MEDICAL CARE**


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**TRANSFORMING INFORMATION, CHANGING HEALTH CARE**


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**EXPERT SYSTEMS AND DECISION SUPPORT IN MEDICINE**


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**33RD ANNUAL MEETING OF THE GMDS EFMI SPECIAL TOPIC MEETING PETER L. REICHERTZ MEMORIAL CONFERENCE HANNOVER, SEPTEMBER 26-29, 1988 PROCEEDINGS**


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**Springer** *The 33rd Annual Meeting of the German Association for Medical Documentation, Informatics and Statistics was combined with a Special Topic Conference of the European Federation for Medical Informatics and takes place at Hannover, F. R. of Germany, from September 26 to 29, 1988. It was planned and initially prepared by the late Prof. P. L. Reichertz, who headed the Hannover institute from 1969 to 1987. To commemorate his contribution to the development of medicine the conference was devoted to him "Peter Reichertz Memorial Conference on Expert Systems and Decision Support in Medicine" Since computers in the early Fifties were first applied to support medical reasoning, various phases of euphoria and resignation have followed. Every new methodology which became technically possible was and will be applied to the old question of how to diagnose diseases more reliably. Artificial Intelligence is just one new approach to the old challenge. Over the years some authors have been very optimistic and put forward opinions which motivated the common press to coin the phrase 'Dr. med. computer'. Papers printed under this heading rebuffed the majority of physicians for many years. Today we know that medical decision making is a most complex human performance. And 30 years of research on decision support have given us only limited insight into the underlying processes. Most of the principal methodological questions were already asked very early on.*

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**MEDICAL INFORMATICS EUROPE 1991**


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**PROCEEDINGS, VIENNA, AUSTRIA, AUGUST 19-22, 1991**


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**Springer** *This volume presents papers from the Tenth International Congress on Medical Informatics, MIE 91. The contributions describe original research in all areas of Medical Informatics. The scientific topics presented range from information and communication systems, knowledge-based systems, signal and image processing, health care, biometry and biomathematics, research and epidemiology, classification and coding, and nursing, up to computer-assisted education, medical curricula, and even robotics in medicine. They are interdisciplinary in nature and may therefore be of interest to a variety of professionals: medical informaticians and health information scientists, medical computing specialists, public health and hospital administrators, physicians, nurses, other allied health personnel, and consultants in the various health fields. A highly prevalent topic in the volume is medical information and communication systems, hospital, medical, clinical, ward, nursing, health, and executive information systems, hospital and data communication networks and PACS, drug information systems (database, interaction, monitoring) and related issues such as standardization of information exchange. The volume's subject index, for example, contains a total of 40 cross-references to the above-mentioned keywords. Moreover, a "hot" topic is knowledge-based systems with 62 cross-references in the subject index. This topic was not only discussed in several Medical Expert Systems' sessions but is also part of sessions such as biosignal and image processing, computer-assisted instruction, and information systems and decision support. Some areas of knowledge-based systems are discussed in detail. This concerns for example, knowledge representation, knowledge acquisition and learning, knowledge models, and evaluation issues. Several contributions report on clinical applications of knowledge-based systems and thus demonstrate their achieved practical usefulness.*