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Preface

The European Society for Artificial Intelligence in Medicine in Europe (AIME) was established in 1986 following a highly successful workshop held in Pavia, Italy, the year before. The aims of AIME are to foster fundamental and applied research in the application of Artificial Intelligence (AI) techniques to medical care and medical research, and to provide a forum for reporting significant results achieved at biennial conferences. In accordance with the latter aim, this volume contains the proceedings of AIME 2001, the eighth conference on Artificial Intelligence in Medicine in Europe, held in Cascais, Portugal, July 1–4, 2001. Previous conferences were held in Marseille (1987), London (1989), Maastricht (1991), Munich (1993), Pavia (1995), Grenoble (1997), and Aalborg (1999). This latter was a joint conference of AIME and ESMDM, the European Society for Medical Decision Making.

The call for papers of AIME 2001 required original contributions regarding the development of theory, techniques, and applications of AI in medicine. Contributions to theory included presentation or analysis of the properties of novel AI methodologies potentially useful in solving medical problems. Papers on techniques described the development or the extension of AI methods and their implementation, and discussed the assumptions and limitations of the proposed methods. Application papers described the implementation of AI systems to solve significant medical problems, and most of them presented an evaluation of the practical benefits of the system proposed.

The call resulted in 79 submissions, covering the areas of knowledge management, machine learning, data mining, decision support systems, temporal reasoning, case based reasoning, planning and scheduling, natural language processing, computer vision, image and signal interpretation, intelligent agents, telemedicine, careflow systems, and cognitive modeling.

All papers were carefully reviewed by at least two independent referees (77% by three referees), belonging to the Program Committee, supported by some additional reviewers. The review form addressed relevance of the paper content to AIME, originality and quality of the research, completeness, and organization of the paper. Eventually, 31 contributions were accepted for oral presentation, and 30 for poster presentation, with a “full paper” acceptance rate of about 39%. Thus, this volume contains 31 full papers and 30 short papers. In addition, the volume contains two keynote lectures written by the invited conference speakers. This year, keynote areas were the communication between agents within healthcare organizations and the sociotechnical approach to the design, implementation, and evaluation of knowledge-based systems. The choice of these areas stems from the recent debate within the medical community about the consequences of lack or default of co-operation among health care professionals. This is one of the main causes of poor care delivery. We think that AIME has the potentiality to take an active role in this debate, devoting efforts to the development

of systems that take into account this medical community need. On the other hand, the 30 years history of AI in medicine shows that effective and efficient implementation of AI systems and, more generally, decision support systems in medicine, is often impaired by poor consideration of the real-world environment where such systems are intended to work.

We finish by thanking all those who contributed to the success of AIME 2001: the authors, the program committee members together with the additional reviewers, the local organizing committee members, the invited speakers Enrico Coiera from Australia and Jos Aarts from The Netherlands, the satellite workshops organizers, Peter Lucas (Bayesian Models in Medicine) and Stephen Rees (Computers in Anaesthesia and Intensive Care: Knowledge-Based Information Management), the tutorials' presenters Christoph Schommer (Application of Data Mining in Medicine), Jeremy Wyatt (Knowledge Management and AI in Medicine: What's the Link?), Gabriela Guimaraes (Unsupervised Neural Networks for Knowledge Discovery in Medicine), and Dan Steinberg (Multivariate Adaptive Regression Splines).

Last but not least we thank all the Institutions that sponsored the conference, namely IPE, Investimentos e Participações Empresariais, SA, Fundação para a Ciência e Tecnologia, and Fundação Calouste Gulbenkian.

April 2001

Silvana Quaglini
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Tutorials

Application of Data Mining in Medicine

Christoph Schommer, IBM German Development Laboratory, Germany

Knowledge Management and AI in Medicine: What's the Link ?

Jeremy Wyatt, University College, London, United Kingdom

Unsupervised Neural Networks for Knowledge Discovery in Medicine

Gabriela Guimarães, Universidade Nova de Lisboa, Portugal

Multivariate Adaptive Regression Splines

Dan Steinberg, Salford Systems, San Diego, CA, USA

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