AAAI/KDD/UAI-2002 Joint Workshop on Real-Time Decision Support and Diagnosis Systems

Preface

This workshop grew out of a spring seminar on real-time intelligent systems at Kansas State University (http://www.kddresearch.org/Courses/Spring-2001/CIS890), organized by several of the program committee members. Subsequent discussions with other participants of this workshop at the International Joint Conference on Artificial Intelligence and Conference (IJCAI-2001) on Uncertainty in Artificial Intelligence (UAI-2001) led to its formation as a joint workshop of the American National Conference on Artificial Intelligence (AAAI), Association for Computing Machinery Special Interest Group on Knowledge Discovery in Databases (ACM-SIGKDD), and Association for Uncertainty in Artificial Intelligence (AUAI). We thank all of the organizers of AAAI-2002, KDD-2002, and UAI-2002.

While AI methodologies are being applied towards increasingly realistic domains that require timely responses, real-time systems are coming to incorporate decision-making tools that require more intelligent capabilities. Many real-world intelligent systems call for autonomous intelligent agents acting in the face of uncertain knowledge and limited computational resources. Real-time decision support and diagnosis systems are two such important application domains.

Real-time decision support and diagnosis topics covered in the diverse papers published in these working notes include:

- real-time Bayesian network inference and learning techniques (Guo and Hsu; Ramos *et al.*)
- embedded intelligent diagnosis agents (Ramos *et al.*)
- real-time decision making and scheduling (Bulitko and Wilkins; Bulitko *et al.;* Garza; Joehanes)
- real-time agent control (Horling *et al.*; Raja and Lesser)
- decision-theoretic planning and deliberative real-time artificial intelligence (Ha and Musliner)
- real-time diagnosis systems (Baydar; Rish *et al.*; Borth)
- real-time sensor fusion and situation assessment (Kwok *et al.*; Prtrov *et al.*; Greenwald)
- real-time search algorithms (Ruml; Farquhar and Harris)
- intelligent user interfaces (Domshlak and Shimony)

We hope that this workshop shall help to bring together people from these different areas and present an opportunity for researchers and practitioners to share recent developments and techniques for creating real-time systems with diagnostic and intelligent decision support capabilities.

More information – including post-workshop summaries, the program and proceedings of this workshop, a working bibliography, and pointers to slides of the invited talks and the related resources – is available at the workshop website:

http://www.kddresearch.org/KDD/Workshops/RTDSDS-2002/

We look forward to an interesting and fruitful workshop.

The workshop organizers,

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Invited Talks

Real-time diagnosis and decision support strategies: from reaction to introspection
Bruce D'Ambrosio, Oregon State University

Fine-grained control of reasoning in constraint satisfaction problems
Michael C. Horsch, University of Saskatchewan

Fast Dynamic Replanning
Sven Koenig, Georgia Institute of Technology

Discussion Panels

1. Discussion session on embedded AI
   - led by ***Fabio Gagliardi Cozman***, University of Sao Paulo, Brazil

2. Discussion session on distributed and cooperative problem solving
   - led by ***Eugene Santos Jr.***, University of Connecticut

3. Discussion session on topics related to diagnosis, real-time Inference, and sensor fusion
   - led by ***Marek J. Druzdzel***, University of Pittsburgh

4. Discussion session on real-time interactive decision support
   - led by ***William H. Hsu***, Kansas State University