Editorial

Decision analysis and artificial intelligence
Feature cluster from the XIX EURO Summer Institute, Toulouse, France, 9–21/9/2001

The idea of organising a EURO Summer Institute on Decision Analysis and Artificial Intelligence was first discussed during a meeting of a special interest group within the CNRS (the French National Science Foundation) in 1999. The subject has been identified as an emerging issue both for the Decision Analysis and the Artificial Intelligence communities. There is evidence both in the literature and in current practice that concepts, methods and tools developed within the two disciplines are complementary and must often be merged to tackle complex decision problems.

From the call for papers we quote:

“In recent years more and more researchers in the field of decision analysis and artificial intelligence realised they work on common, parallel or similar subjects. Issues such as: planning under uncertainty, qualitative models of decision making, distributed decision making, automated decision making, preference modelling, ordinal structures, rational and autonomous agents, learning, are now in the center of both theoretical and applied research of both disciplines. The ESI XIX welcomes contributions from both areas on these subjects”.

The XIX ESI has been sponsored by the French OR society (ROADEF) and EURO with the active support of EURO itself, Université Paris Dau-
The scientific committee provided a feedback to all the participants encouraging them to submit their papers to EJOR. All, but one, accepted to do so and we had 17 papers at the beginning of the process. Only 12 have been included in this cluster, but we hope to see the rest in the regular issues of EJOR soon.

Several among the papers have gone through extended revisions resulting to a faithful image of the scientific quality of the ESI itself.

The papers cover a wide range of subjects including (in order of appearance in this issue) preference-based search and optimisation, classification for decision-making, fuzzy sets and multiple criteria decision support, logical representation of preferences. The paper of D. Dubois and Ph. Fortemps shows how to find the preferred solutions in dynamic programming problems under flexible constraints. Then, J. Riera-Ledesma and J.J. Salazar-González introduce new heuristics and results for the bi-objective travelling purchaser problem. P. Gerard and his colleagues study how to combine latent learning with dynamic programming. J.A. Fernández del Pozo and his colleagues face the problem of reducing the space occupied by decision tables constructed for real applications. J. Dombi and A. Zsiros present a method aiming at learning the parameters of a discriminant function in a multiple criteria classification problem. A. Ekart and S. Németh propose an investigation on the use of tree structures in stability analysis for multiple criteria decision making problems. S. Wilk and his colleagues present a nice application of rough sets theory in classifying young patients (in Canadian children hospitals) introduced under urgency with abdominal pain. M. Omero and her colleagues introduce a procedure aiming at assessing the performance of production units, merging different heterogeneous information coming from Data Envelopment Analysis, expert assessment and data analysis. B. de Baets and H. de Meyer introduce a new fuzzification scheme for cardinality based similarity measures, relying on the use of Franck t-norms as intersection operators. C. Lafage and J. Lang present a logical framework for representing preferences, based on the use of “distance” to goals (desired states of the world). L. van der Torre and his colleagues present a comparison between classical, qualitative and cognitive theories of decision making. Finally, S. Konieczny and R. Pino Perez investigate the link between social choice theory and the problem of aggregating “beliefs” provided by different agents.

The above papers are only a small sample of the fertile interactions between decision analysis and artificial intelligence. We are firmly convinced that such interactions are worth continuing and developing in the near future, and that various workshops, conferences and special issues will occur as a result of the increasing interest on these two areas. We hope that this EJOR feature issue will be considered as a first contribution to a long history of cross-disciplinary results to come.