



MCDA Research Groups

Laboratory of Operations Research, Decision and Control of Processes



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LARODEC is a scientific educational laboratory at the Higher Institute of Management of Tunis, Tunisia (Institut Supérieur de Gestion, ISG, Tunis), University of Tunis. The main interest of the LARODEC is multicriteria optimization, decision theory, statistics and probability.

The LARODEC currently includes 27 Faculty and permanent researchers, 32 Graduate students. The main objective of the laboratory is to contribute to the national and international research activity by supervising graduate students.

Research Program

Following is the list of decision aid problems considered in our research program:

- Multicriteria decision aid.
- Interactive decision systems
- Multiobjective optimization
- Quality control of products and processes.
- Data mining
- Optimization of the allocation and the management of water resources.
- Transportation networks and telecommunication.
- Choice problem in an uncertain universe
- Reliability and production systems

Relevant LARODEC Publications

- Ben Abdelaziz F., Enneifar L. and Martel J.M. A Multiobjective Fuzzy Stochastic Program for Water Resources Optimization: the Case of Lake Management, accepted for publication in INFOR.
- Ben Abdelaziz F., Krichen S. An Interactive Method for the optimal Selection Problem with Two Decision Makers, to appear in European Journal of Operational Research.
- Ben Abdelaziz F., Masri H. Stochastic Programming with linear Partial Information on Probability Distribution, to appear in European Journal of Operational Research.
- Ben Abdelaziz F., Mamoghli Ch., and Aouni L. A bivariate risk aversion measure, To appear in Finance India.
- Ben Abdelaziz F., J M Martel, A Mselmi. [IMGD: an interactive method for multiobjective group decision aid](#), The Journal of the Operational Research Society. Oxford: May 2004. Vol. 55, Iss. 5; p. 464
- Elouadi Z., Mellouli K., and Smets P. Assessing sensor reliability for multisensor data fusion with the transferable belief model. IEEE Transactions on System Man and Cybernetics. Part B, february 2004.
- Zouaoui H. and Limam M. Interval estimation for gauge R&R studies with four factors : A case study. Journal of Quality Technology To appear (2004).
- Ben Amor N., Benferhat S., Dubois D., Mellouli K., and Prade, H. A theoretical framework for possibilistic independence in a weakly ordered setting. To appear in International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems .
- Hajlaoui, M. and Limam, M.M.T.(2003), Economical Quality Control with Measurement Error, Communications in Statistics: Theory and Methods, 32, 11, 2259-2273.
- Ben Yaghlane B. Smets Ph. And Mellouli K. Belief function independence : I. the conditional case. International Journal of Approximate Reasoning 31/1-2 (2002), 31-75.

- Ben Yaghlane B. Smets Ph. And Mellouli K.. Belief function independence : I. The marginal case. *International Journal of Approximate Reasoning* 29/1 (2002), 47-70.
- El- Aroui M.A. and Diebolot J. On the use of the peaks over thresholds method for estimating out-of-sample quantiles. *Computational Statistics and Data Analysis* 39, 4 (2002), 453-475.
- Ben Abdelaziz F., Lang P and Nadeau R., [Dominance and Efficiency in Multicriteria Decision under Uncertainty](#), Theory and Decision. Dordrecht: Dec 1999. Vol. 47, Iss. 3; p. 191

Cooperation

The LARODEC laboratory collaborates with many international research teams. Below are some cooperation projects :

1. Project PICS : cooperation project between LARODEC and the LIP6 laboratory of the university of « Pierre et Marie Curie » of Paris. The project of cooperation entitled « Qualitative decision model and management of the environment in an uncertain universe » concerns the development and the application of non-probabilistic models of uncertainty in a real decisional context.
2. Luso-Tunisian cooperation project (GRICES): Institut Supérieur de Gestion and Faculdade de Economia da Universidade de Coimbra : "Preference modelling in electoral systems and multi-criteria analysis". January 2004 - December 2005.
3. Actions of exchanges DGRST-CNRS : between the LARODEC and the laboratory HEUDIASYC of the technological university of Compiègne. The project is entitled « Aid to the classification in an uncertain context ». Its main objective is to develop methods of classification in an uncertain context.
4. Actions of exchanges DGRST-CNRS : between the LARODEC and the laboratory IRIT of Toulouse. The project is entitled « Decision aid through theories of uncertainty ». The two teams (LARODEC and IRIT) work together from more than four years with the help of the research group FUSION (Fusion of Uncertain Data for Sensors, Information Systems and Expert Opinions) that allowed many research meetings.

5. French-Tunisian cooperation project CMCU : between the LARODEC and the laboratory HEUDIASYC of the technological university of Compiègne. The project is entitled « Representation and management of the uncertainty in the decision problem : Evidential, possibilistic and probabilistic approaches.

Events

The Larodec organized the following conferences

- [MOPGP'04](#), Hammamet from 11 to 14 April, 2004. MOPGP is a series of international conferences dedicated to multiobjective programming and goal programming (MOP/GP)
- [ROC04](#): Second meeting of operations research and control of processes and third scientific day of LARODEC, Mahdia, April 2004.
- [ROC03](#): First meeting of operations research and control of processes, and second scientific day of LARODEC. This day has been organized in the month of January 2003 in Hammamet and many members of the laboratory and invited researches have presented their works
- Co organizer of the international conference [IEEE/SMC](#) (Science, Men and Cybernetics - IEEE SMC-2002 in Hammamet.
- International Total Quality Management TQM'02, June 2002 in Tunis, the number of participants is about one hundred (researchers and industrial engineers).
- International seminar "Total Quality Management TQM'01" March 2001 in Tunis. The number of participants is about one hundred (researchers and industrial engineers).
- EMAD'99: Multicriteria meeting for decision aid, April 1999 in Gammarth, Tunisia