Linköping Electronic Articles in
Computer and Information Science
Vol. 5(2000): nr 15

Multi-Criteria Decision Quality Optimization as a Scheduling Problem

Abdel-Illah Mouaddib

Linköping University Electronic Press
Linköping, Sweden

http://www.ep.liu.se/ea/cis/2000/015/

Posted on March 15,
formally published on December 21, 2000
by Linköping University Electronic Press
581 83 Linköping, Sweden

Linköping Electronic Articles in
Computer and Information Science
ISSN 1401-9841
Series editor: Erik Sandewall

Recommended citation:
<Author>. <Title>. Linköping Electronic Articles in Computer and Information Science, Vol. 5(2000): nr 15. http://www.ep.liu.se/ea/cis/2000/015/. *December 21, 2000.*

This URL will also contain a link to the author's home page.

Abstract

Decision quality under uncertainty is a problem that has been addressed by many researchers. But most of the works dedicated to this problem assume that there is a single quality measure to computation based on the status of an n-tuple of criteria. However, in most of real-world applications the quality is multi-criteria where each criterion captures a dimension of value in the solution.

In this paper, we present a decision maker that manipulates the quality as a vector of criteria where the improvemnet of each criterion is in charge of a progressive processing agent that uses its hierarchy of processing levels to improve the quality of this criterion incrementally. We discuss the problem of optimizing the decision of sequencing processing levels of agents by transforming it to a MDP. We also present the strategy to be adopted when considering the criteria preferences. Finally, we discuss how this approach can be applied to controlling a static set of dependent progressive processing agents where there is no predetermined sequence of agents.

Author's affiliation

CRIL-IUT de Lens - Université d'Artois
Rue de l'université, S.P. 16
62307 Lens Cedex, France
mouaddib@cril.univ-artois.fr

For technical reasons, this article is stored as two separate computer files, labelled "Part I" and "Part II", respectively. Please replace the present page by a printout of the "Part II" file.