Ghent University – Database, Document and Content Management – DDCM

Contact details

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Organisation type	University
Organisation size	University: 9000; department: 100; DDCM: 10
Research disciplines	Database systems, Information systems, Decision support systems, Uncertainty modelling

Participant details

Prof. Dr. Guy De Tré (computer scientist; head of DDCM)
Ir. Robin De Mol (software engineer)

Organisation Details

Since the end of the 70s, DDCM has conducted research on the modelling and management of imperfect information, thereby explicitly considering the fact that information can be uncertain, imprecise, fuzzily described, incomplete and/or inconsistent.
Current research, among others, aims at the development of new techniques to enhance accessibility to databases, documents and other data archives. Research topics are, among others: flexible querying and information retrieval from documents, object comparison, modelling and management of (imperfect) temporal and spatial information, content based management of multimedia, document management, business intelligence and decision support.
Beside its fundamental and applied research, through the years, the group has built a profound theoretical and practical expertise in the modelling of information, the design and implementation of databases and the digitizing and archiving of (multimedia) information.

Areas of Activity related to Resource Management

Contributions to TILES relate to the following expertise: database design and implementation, uncertainty modelling, decision support and software engineering.
DDCM is responsible for the design and implementation of a decision support system that generates 3D suitability maps indicating the suitability of a set of 3D spatial voxels for sand extraction. The main components of this system are:

- An integrated data set containing all available data that are considered to be relevant for the sand extraction study and are considered within the scope of the project.
- An evaluation tree, which contains all criteria considered in the scope of the project. Criteria can be specified in a flexible way, supporting gradual criteria satisfaction and are structured in a tree structure that reflects their hierarchical nature (criteria can consist of sub criteria).
- An advanced aggregation structure that is used to compute the overall suitability of a given area and reflects expert reasoning as adequately as possible (by using soft computing techniques). The aggregation structure explicitly copes with the uncertainties stemming from the (availability of the) data.