Automatic map interpretation

Key members: György Hudra
Endre Katona [1]

Founded by: Hungarian Scientific Research Found (OTKA T020523)
Phare (HU905.0203 Land Consolidation Project)

Partners:
Sándor Omaszta (Hungarian Ministry of Agriculture)
József Szabó (Geonet 2000 Ltd.)

Lifetime from: 1996
Lifetime to: 2000

Short description: Scanned cadastral maps have been vectorized, and map objects have been recognized using graph algorithms and neural network.

Description:
To create a spatial database for some GIS application, it is a big challenge to recognize automatically all the simple and complex map objects on scanned maps.
In this project a robust map interpretation system – called MAPINT - has been developed to process Hungarian land register maps (cadastral maps). Processing starts with an affine coordinate transform, followed by a raster-to-vector conversion generating a raw vector image from the scanned map. All recognition steps are performed on this raw vector image: segmentation, recognition of separated and not separated symbols, recognition of more complex objects (buildings and parcels). Character recognition is performed by a feed-forward back-propagation neural network, to ensure learning abilities for the system. Finally, the drawing quality is enhanced utilizing the recognition results.
Interpretation is supported by a special data structure - called DG - ensuring dynamic description of hierarchical structures of drawing objects. This data structure is an essential part of our concept. MAPINT has been applied in the Phare Land Consolidation Project supporting the creation of a Hungarian cadastral information system, recognizing parcel numbers and connecting them with parcel records stored in an Oracle database.

Publications:


A Graph Based Data Model for Graphics Interpretation [5], Katona, Endre [3], Graph-Based Representations in Pattern Recognition, October 2009, Volume 5534, Number 5534, Venice, Italy, p.355-364, (2009)

Software:
nincs de lehet

Kategória: Geoinformatics

Source URL (retrieved on 2018-06-10 14:37):
http://www.inf.u-szeged.hu/ipcg/projects/map-interpretation

Links: