

# Abstract

## **A GIS vectorization model for quad-tree satellite images**

Quad tree is a common raster data structure that uses recursive decomposition to divide a raster into a hierarchy of quadrants. This paper aims to develop a vectorization model for the conversion of quad tree satellite images to a vector format that can be used and processed in geographic information systems (GIS) projects. The proposed model consists of four main phases: applying noise removal filter, segmenting images using edge detection methods, recognition of segment boundaries using a contour detection algorithm, and approximation of the sets of connected points by generalization and simplification procedures to create Shape-files vector map data. The proposed vectorization model is implemented using Pascal. Results showed that the model is acceptable for mapping purposes. Future work may include developing a vector linker component, capable of linking different vectors at different blocks at the same layer.