

## Development of Algorithms for the Study of the Image in Digital Form for Satellite Applications: Extraction of a Road Network and Its Nodes

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**Abstract :** In this paper, we propose a novel methodology for extracting a road network and its nodes from satellite images of Algeria country. This developed technique is a progress of our previous research works. It is founded on the information theory and the mathematical morphology; the information theory and the mathematical morphology are combined together to extract and link the road segments to form a road network and its nodes. We, therefore, have to define objects as sets of pixels and to study the shape of these objects and the relations that exist between them. In this approach, geometric and radiometric features of roads are integrated by a cost function and a set of selected points of a crossing road. Its performances were tested on satellite images of Algeria country.

**Keywords :** satellite image, road network, nodes, image analysis and processing

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