AN OBJECT-ORIENTED APPROACH TO
URBAN LAND-COVER AND LAND-USE CLASSIFICATION

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ABSTRACT

The greater availability of remotely sensed high-resolution imagery and recent advances in object-oriented analysis allows for more detail than ever before in urban image classification. This thesis explores object-oriented land-cover and land-use classifications with 1-meter resolution Ikonos imagery for an area in Mississauga, Ontario. First, three different ways of classifying land cover, with varying inclusion of ancillary building and road data, are examined. Second, the spatial relations of the land-cover information are examined to derive land use. Formal accuracy assessments, as well as statistical and visual evaluations, for the land-cover and land-use classifications show that the object-oriented approach works well for classifying an urban area. The results of this thesis confirm the observed trend in the literature to move away from the traditional pixel-based techniques for urban image classification in exchange for object-oriented classification methods; which include shape, textural, and contextual information in addition to spectral information.

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