CADASTRAL COORDINATE TRANSFORMATION USING LEAST SQUARE SUPPORT VECTOR MACHINE

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Abstract

There are two coordinate systems with different geodetic datum in Taiwan region, i.e., TWD67 (Taiwan Datum 1967) and TWD97 (Taiwan Datum 1997). In order to maintain the consistency of cadastral coordinates, it is necessary to transform one coordinate system to another. There are many coordinate transformation methods, such as, 2-dimension affine transformation, artificial neural network transformation, and support vector machine (SVM). Least Square Support Vector Machine (LSSVM), is one type of SVM algorithms. LSSVM has been successfully applied to the fields of image classification, and statistical regression. The goal of this paper is to apply LSSVM to cadastral coordinate transformation between TWD67 and TWD97. The simulated and real cadastral coordinates will be used to test the performance and transformation accuracy of LSSVM. The basic LSSVM theory, related test results and discussions will be presented in this paper.

Key words: Coordinate Transformation, Least Square Support Vector Machine, Neural Network, 6-parameter Transformation.