N. HWANG, H. SON, C-M. KIM, C-W. KIM. **Is color an intrinsic property of construction object's representation?** *Gerontechnology 2012;11(2):324;* doi:10.4017/gt.2012.11.02.433.00 **Purpose** Structural component detection is a prerequisite for various applications, including construction progress measurement and quality inspection. However, it is still a challenge to detect structural components reliably in construction site images taken from a complex and unstructured construction environment. Because construction site images contain numerous unexpected objects, structural components in the images are observed under different poses and varying lighting conditions. The aim of this study is to discover how color information effectively works on structural component detection in construction site images by incorporating hybrid data mining techniques. **Method** To verify the effectiveness of the color-based models for structural components detection, this study involves data collection, feature selection, and color-based model building. First, this study tried to collect the most comprehensive data set on structural components detection before assessment. Second, it attempted to extract the best set of effective color features among all the available color features through feature selection. Third, this study evaluated and compared the performance of the constructed color-based models (defined in terms of accuracy rate) using hybrid data mining techniques. This study then identified the most effective configuration of color features and data mining techniques to detect structural components. **Results & Discussion** The experimental results suggest that color can be a powerful cue for reliable detection of structural components in construction site images. The use of the set of color features in combination with a hybrid data mining technique in structural component detection is highly accurate (accuracy rate above 95%) in detecting structural components composed of major construction materials (e.g. concrete, steel, and wood). The results from structural components detection that are obtained by the proposed combination are reliable for use as an essential input for various applications, including construction progress measurement and quality inspection.
Keywords: automation, data mining, feature selection, structural component detection
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