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Source Camera Model Identification Based on Convolutional Neural Networks with Local Binary Patterns Coding

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Abstract

Source camera model identification has always been one of the main fields of digital image forensics since it is the foundation of solving a wide range of forensic problems. Several effective camera model identification algorithms have been developed for the practical necessity. However, they are mostly based on traditional machine learning methods and rely on well-designed features or models. Since deep learning has made great progress in computer vision tasks, significant interest has arisen in applying deep learning in image forensics. In this paper, we present a deep learning approach to tackle source camera model identification problem. We modify a convolutional neural networks (CNNs) structure similar to AlexNet and equip it with a simple local binary patterns (LBP) preprocessing operation. The identification accuracy on the public database “Dresden Image Database” achieves 98.78% over 12 camera models without any other sophisticated procedures, for instance, extra classifier, majority voting, etc.

Keywords: Camera model identification, Image forensics, Convolutional neural networks (CNNs), Local Binary Patterns (LBP)

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