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Robust color image watermarking using multi-core Raspberry pi cluster.

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Document Type: Article
Subjects: Digital image watermarking
Parallel programming
Computing platforms
Message passing (Computer science)
Raspberry Pi
Watermarks
Author Supplied Keywords: Cluster
Image watermarking
Message passing interface
MPI
OpenMP
Parallel computing
Quaternary Legendre-Fourier moments
Raspberry pi

Abstract: Image authentication approaches have gotten a lot of interest recently as a way to safeguard transmitted images. Watermarking is one of the many ways used to protect transmitted images. Watermarking systems are so-based that have limited portability that is difficult to use in harsh environments as military use. We employ embedded devices like Raspberry Pi to get around the PC's mobility limitations. Digital image watermarking technology is used to secure and ensure digital images' copyright by embedding hidden information that proves its copyright. In this article, the color images Parallel Robust watermarking algorithm using Quaternary Legendre-Fourier Moment (QLFM) in polar coordinates is implemented on Raspberry Pi (RPi) platform with parallel computing and C++ programming language. In the host image, a binary Arnold scrambled image is embedded. Watermarking algorithm is implemented and tested on Raspberry Pi model 4B. We can combine many Raspberry Pi's into a 'cluster' (many computers working together as one) for high-performance computation. Message Passing Interface (MPI) and OpenMP for parallel programming to accelerate the execution time for the color image watermarking algorithm implemented on the Raspberry Pi cluster. [ABSTRACT FROM AUTHOR]

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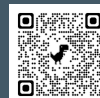
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