



RESEARCH OF DUAL WATERMARKING TECHNOLOGY FOR DIGITAL IMAGE

Fang Yinglan, Han Bing, Zhang Yongmei and Tian Lin

School of Computer

North China University of Technology

Beijing, 100144, P.R. China

Emails: jlufangyl@163.com

Submitted: July 9, 2015

Accepted: Jan. 8, 2016

Published: Dec. 1, 2016

Abstract- Digital image watermark has been studied as object. It analyzed the typical digital watermark algorithms based on the space domain and transform domain and key researched watermarking algorithm based on discrete wavelet transform. It has designed and improved blind watermarking algorithm and color image watermarking algorithm. Finally, based on the two improved watermarking algorithm, it has designed a dual watermarking algorithm. Both are separated but related. It authenticates dual watermarking algorithm in addition to subjective visual evaluation, but also use numerical objective evaluation and quantitative analysis. Experimental results show that this dual watermarking algorithm combines with robustness and concealment.

Index terms: Dual watermarking, discrete wavelet transform, robustness, concealment.