Denoising of Stego-images for different noise models

Mazhar Tayel, Ahmed Gamal, Hamed Shawky

Electrical Engineering Department, Faculty of Engineering, Alexandria University

profbasyouni@gmail.com, gamalahmed8566@yahoo.com, dr.hamedzied@gmail.com

Abstract— **Steganography plays an important role in secret communication systems, however the main drawbacks in Stego- images are presence of noise and degradation during acquisition or transmission. In this paper different noise models, including additive and multiplicative types, are studied. They include Gaussian noise, salt and pepper noise and speckle noise. The criterion of noise removal problem depends on noise type by which image is corrupting. Several types of linear and nonlinear filtering techniques are proposed and applied for noise removal. Experiments show that Mean Square Error (MSE), Peak Signal to Noise Ratio (PSNR) and Correlation (COR), are the most suitable assessment parameters.**

Keyword— **Discrete Wavelet Transform, Stego-image, Noise Model, Average filter, median filter and Wiener filter.**

BIOGRAPHIES

Mazhar B. Tayel was born in Alexandria, Egypt on Nov. 20th, 1939. He was graduated from Alexandria University Faculty of Engineering Electrical and Electronics department class 1963. He published many papers and books in electronics, biomedical, and measurements. Prof. Dr. Mazhar Basyouni Tayel had his B.Sc. with honor degree in 1963, and then he had his Ph.D. Electro-physics degree in 1970. He had this Prof. Degree of elect. and communication and Biomedical Engineering and systems in 1980. Now he is Emeritus Professor since 1999. From 1987 to 1991 he worked as a chairman, communication engineering section, EED BAU-Lebanon and from 1991 to 1995 he worked as Chairman, Communication Engineering Section, EED Alexandria. University, Alexandria Egypt, and from 1995 to 1996 he worked as a chairman, EED, Faculty of Engineering, BAU-Lebanon, and from 1996 to 1997 he worked as the dean, Faculty of Engineering, BAU - Lebanon, and from 1999 to 2009 he worked as a senior prof., Faculty of Engineering, Alexandria. University, Alexandria Egypt, finally from 2009 to now he worked as Emeritus Professor, Faculty of Engineering, Alexandria University, Alexandria Egypt. Prof. Dr. Tayel worked as a general consultant in many companies and factories also he is Member in supreme consul of Egypt. E.Prof. Mazhar Basyouni Tayel.

Ahmed Gamal Abdalatife is a Post Graduate Student (master), Alexandria University, Egypt. He was born in **Sharkia**, Egypt on June, 1985. He received many technical courses in electronic engineering design and Implementation.

Hamed Shawky Zied is an affiliate instructor in Faculty of Engineering, Alexandria University, Alexandria, Egypt. and became a Member of IEEE in 2012. He was born in Minoufia, Egypt in 1973. He holds B.Sc. in Electronics and Communications from Faculty of Engineering, Alexandria University, M.Sc. in Electrical Engineering from Faculty of Engineering, Alexandria University. And Ph.D. in Electrical Engineering from Faculty of Engineering, Alexandria University.He received many technical courses in electronic engineering design and Implementation. Teach up to 10 undergraduate subjects, publish more than 10 papers in different international conferences and journals.

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