Bibliography

- N. Memon and P. W. Wong, "Protecting digital media content," Commun. ACM, vol. 41, pp. 35–43, July 1998.
- [2] G. Voyatzis and I. Pitas, "The use of watermarks in the protection of digital multimedia products," *Proceedings of the IEEE*, vol. 87, no. 7, pp. 1197–1207, 1999.
- [3] I. Cox, M. Miller, J. Bloom, J. Fridrich, and T. Kalker, *Digital watermarking and steganography*. Morgan Kaufmann, 2007.
- [4] F. Hartung and M. Kutter, "Multimedia watermarking techniques," Proceedings of the IEEE, vol. 87, no. 7, pp. 1079–1107, 1999.
- [5] J. Xuehua, "Digital watermarking and its application in image copyright protection," in *Intelligent Computation Technology and Automation (ICICTA)*, 2010 International Conference on, vol. 2, pp. 114–117, IEEE, 2010.
- [6] G. Bhatnagar, Q. J. Wu, and B. Raman, "A new aspect in robust digital watermarking," *Multimedia tools and applications*, vol. 66, no. 2, pp. 179–200, 2013.
- [7] C. Song, S. Sudirman, and M. Merabti, "Recent advances and classification of watermarking techniques in digital images," in *Proceedings of Post Graduate Network Symposium*, pp. 1–6, 2009.
- [8] C. Song, S. Sudirman, and M. Merabti, "A robust region-adaptive dual image watermarking technique," *Journal of Visual Communication and Image Representation*, vol. 23, no. 3, pp. 549–568, 2012.

- [9] D. Singh, S. Shivani, and S. Agarwal, "Quantization-based fragile watermarking using block-wise authentication and pixel-wise recovery scheme for tampered image," *International Journal of Image and Graphics*, vol. 13, no. 02, p. 1340002, 2013.
- [10] D. Singh, S. Shivani, and S. Agarwal, "Self-embedding pixel wise fragile watermarking scheme for image authentication," in *Intelligent Interactive Technologies and Multimedia*, pp. 111–122, Springer, 2013.
- [11] F. Peng, R.-S. Guo, C.-T. Li, and M. Long, "A semi-fragile watermarking algorithm for authenticating 2d cad engineering graphics based on log-polar transformation," *Computer-Aided Design*, vol. 42, no. 12, pp. 1207–1216, 2010.
- [12] R. O. Preda, "Semi-fragile watermarking for image authentication with sensitive tamper localization in the wavelet domain," *Measurement*, vol. 46, no. 1, pp. 367–373, 2013.
- [13] X. Qi and X. Xin, "A quantization-based semi-fragile watermarking scheme for image content authentication," *Journal of visual communication and image representation*, vol. 22, no. 2, pp. 187–200, 2011.
- [14] S. Wang, D. Zheng, J. Zhao, W. J. Tam, and F. Speranza, "Adaptive watermarking and tree structure based image quality estimation," *IEEE Transactions on Multimedia*, vol. 16, no. 2, pp. 311–325, 2014.
- [15] X. Zhu, A. T. Ho, and P. Marziliano, "A new semi-fragile image watermarking with robust tampering restoration using irregular sampling," *Signal Processing: Image Communication*, vol. 22, no. 5, pp. 515–528, 2007.
- [16] I. J. Cox, J. Kilian, F. T. Leighton, and T. Shamoon, "Secure spread spectrum watermarking for multimedia," *IEEE transactions on image processing*, vol. 6, no. 12, pp. 1673–1687, 1997.
- [17] R. K. Megalingam, M. M. Nair, R. Srikumar, V. K. Balasubramanian, and V. S. V. Sarma, "Performance comparison of novel, robust spatial domain digital image watermarking with the conventional frequency domain watermarking techniques," in *Signal Acquisition and Processing*, 2010. ICSAP'10. International Conference on, pp. 349–353, IEEE, 2010.

- [18] C. I. Podilchuk and E. J. Delp, "Digital watermarking: algorithms and applications," *IEEE signal processing Magazine*, vol. 18, no. 4, pp. 33–46, 2001.
- [19] M. Barni, F. Bartolini, V. Cappellini, and A. Piva, "A dct-domain system for robust image watermarking," *Signal processing*, vol. 66, no. 3, pp. 357–372, 1998.
- [20] C.-C. Chang, J.-C. Chuang, and T.-S. Chen, "Recognition of image authenticity using significant dct coefficients quantization," *INFORMATICA-LJUBLJANA*-, vol. 26, no. 4, pp. 359–366, 2002.
- [21] C.-C. Chang, J.-Y. Hsiao, and J.-C. Yeh, "A colour image copyright protection scheme based on visual cryptography and discrete cosine transform," *Imaging science journal*, vol. 50, no. 3, pp. 133–140, 2002.
- [22] W. C. Chu, "Dct-based image watermarking using subsampling," *IEEE trans*actions on multimedia, vol. 5, no. 1, pp. 34–38, 2003.
- [23] T.-H. Chen, G. Horng, and W.-B. Lee, "A publicly verifiable copyright-proving scheme resistant to malicious attacks," *IEEE Transactions on Industrial Electronics*, vol. 52, no. 1, pp. 327–334, 2005.
- [24] D. Kundur and D. Hatzinakos, "Toward robust logo watermarking using multiresolution image fusion principles," *IEEE Transactions on Multimedia*, vol. 6, no. 1, pp. 185–198, 2004.
- [25] H. Qi, D. Zheng, and J. Zhao, "Human visual system based adaptive digital image watermarking," *Signal Processing*, vol. 88, no. 1, pp. 174–188, 2008.
- [26] E. Elbasiα and A. M. Eskiciogluβ, "A semi-blind watermarking scheme for color images using a tree structure," in 2006 Western New York Image Processing Workshop, p. 5, Citeseer.
- [27] E. Ganic and A. M. Eskicioglu, "Robust dwt-svd domain image watermarking: embedding data in all frequencies," in *Proceedings of the 2004 Workshop on Multimedia and Security*, pp. 166–174, ACM, 2004.
- [28] R. O. Preda, "Self-recovery of unauthentic images using a new digital watermarking approach in the wavelet domain," in *Communications (COMM)*, 2014 10th International Conference on, pp. 1–4, IEEE, 2014.

- [29] I. J. Cox, M. L. Miller, and J. A. Bloom, "Watermarking applications and their properties," in *itcc*, pp. 6–10, 2000.
- [30] J. Nin and S. Ricciardi, "Digital watermarking techniques and security issues in the information and communication society," in Advanced Information Networking and Applications Workshops (WAINA), 2013 27th International Conference on, pp. 1553–1558, IEEE, 2013.
- [31] C. Song, S. Sudirman, M. Merabti, and D. Llewellyn-Jones, "Analysis of digital image watermark attacks," in 2010 7th IEEE Consumer Communications and Networking Conference, pp. 1–5, IEEE, 2010.
- [32] S. Voloshynovskiy, S. Pereira, T. Pun, J. J. Eggers, and J. K. Su, "Attacks on digital watermarks: classification, estimation based attacks, and benchmarks," *IEEE communications Magazine*, vol. 39, no. 8, pp. 118–126, 2001.
- [33] A. K. Singh, N. Sharma, M. Dave, and A. Mohan, "A novel technique for digital image watermarking in spatial domain," in *Parallel Distributed and Grid Computing (PDGC), 2012 2nd IEEE International Conference on*, pp. 497– 501, IEEE, 2012.
- [34] W. Bender, D. Gruhl, N. Morimoto, and A. Lu, "Techniques for data hiding," *IBM systems journal*, vol. 35, no. 3.4, pp. 313–336, 1996.
- [35] S. D. Lin, S.-C. Shie, and J. Y. Guo, "Improving the robustness of dct-based image watermarking against jpeg compression," *Computer Standards & Interfaces*, vol. 32, no. 1, pp. 54–60, 2010.
- [36] M. Paunwala and S. Patnaik, "Biometric template protection with dct-based watermarking," *Machine vision and applications*, vol. 25, no. 1, pp. 263–275, 2014.
- [37] K. R. Rao and P. Yip, Discrete cosine transform: algorithms, advantages, applications. Academic press, 2014.
- [38] A. N. Akansu, W. A. Serdijn, and I. W. Selesnick, "Emerging applications of wavelets: A review," *Physical communication*, vol. 3, no. 1, pp. 1–18, 2010.

- [39] C. E. Heil and D. F. Walnut, "Continuous and discrete wavelet transforms," SIAM review, vol. 31, no. 4, pp. 628–666, 1989.
- [40] R. C. Gonzalez and R. E. Woods, "Digital image processing," Nueva Jersey, 2008.
- [41] M. N. Do and M. Vetterli, "The contourlet transform: an efficient directional multiresolution image representation," *IEEE Transactions on image processing*, vol. 14, no. 12, pp. 2091–2106, 2005.
- [42] H. Sadreazami, M. O. Ahmad, and M. S. Swamy, "A study of multiplicative watermark detection in the contourlet domain using alpha-stable distributions," *IEEE Transactions on Image Processing*, vol. 23, no. 10, pp. 4348–4360, 2014.
- [43] A. A. Mohammad, A. Alhaj, and S. Shaltaf, "An improved svd-based watermarking scheme for protecting rightful ownership," *Signal Processing*, vol. 88, no. 9, pp. 2158–2180, 2008.
- [44] P. Pandey, S. Kumar, and S. K. Singh, "Rightful ownership through image adaptive dwt-svd watermarking algorithm and perceptual tweaking," *Multimedia Tools and Applications*, vol. 72, no. 1, pp. 723–748, 2014.
- [45] P. Pandey, S. Kumar, and S. K. Singh, "A robust logo watermarking technique in divisive normalization transform domain," *Multimedia Tools and Applications*, vol. 72, no. 3, pp. 2653–2677, 2014.
- [46] Q. Li and Z. Wang, "Reduced-reference image quality assessment using divisive normalization-based image representation," *Selected Topics in Signal Processing, IEEE Journal of*, vol. 3, no. 2, pp. 202–211, 2009.
- [47] S. Lyu and E. P. Simoncelli, "Nonlinear image representation using divisive normalization," in *Computer Vision and Pattern Recognition*, 2008. CVPR 2008. IEEE Conference on, pp. 1–8, IEEE, 2008.
- [48] J. Malo, I. Epifanio, R. Navarro, and E. P. Simoncelli, "Nonlinear image representation for efficient perceptual coding," *IEEE Transactions on Image Processing*, vol. 15, no. 1, pp. 68–80, 2006.

- [49] M. Wu and B. Liu, "Watermarking for image authentication.," in *ICIP* (2), pp. 437–441, 1998.
- [50] Y. Lim, C. Xu, and D. D. Feng, "Web based image authentication using invisible fragile watermark," in *Proceedings of the Pan-Sydney area workshop* on Visual information processing-Volume 11, pp. 31–34, Australian Computer Society, Inc., 2001.
- [51] S. Shivani, A. K. Patel, S. Kamble, and S. Agarwal, "An effective pixel-wise fragile watermarking scheme based on ara bits," in *Proceedings of the 2011 International Conference on Communication, Computing & Security*, pp. 221– 226, ACM, 2011.
- [52] X. Zhang and S. Wang, "Statistical fragile watermarking capable of locating individual tampered pixels," *IEEE Signal Process. Lett.*, vol. 14, no. 10, pp. 727–730, 2007.
- [53] H. He, J. Zhang, and H.-M. Tai, "A wavelet-based fragile watermarking scheme for secure image authentication," in *International Workshop on Digital Watermarking*, pp. 422–432, Springer, 2006.
- [54] Y.-P. Hu and D.-Z. Han, "Using two semi-fragile watermark for image authentication," in 2005 International Conference on Machine Learning and Cybernetics, vol. 9, pp. 5484–5489, IEEE, 2005.
- [55] X. Wu, J. Hu, Z. Gu, and J. Huang, "A secure semi-fragile watermarking for image authentication based on integer wavelet transform with parameters," in *Proceedings of the 2005 Australasian workshop on Grid computing and eresearch-Volume 44*, pp. 75–80, Australian Computer Society, Inc., 2005.
- [56] C. Jin, Y. Chao, and X.-L. Zhang, "Semi-fragile watermark based on adaptive quantization for image content authentication," in 2009 International Conference on E-Business and Information System Security, pp. 1–5, IEEE, 2009.
- [57] Y. Hu, W. Chen, C. Lo, and C. Wu, "A novel tamper detection scheme for btc-compressed images," *Opto-Electronics Review*, vol. 21, no. 1, pp. 137–146, 2013.

- [58] C.-C. Lo and Y.-C. Hu, "A novel reversible image authentication scheme for digital images," *Signal processing*, vol. 98, pp. 174–185, 2014.
- [59] L.-C. Huang, L.-Y. Tseng, and M.-S. Hwang, "A reversible data hiding method by histogram shifting in high quality medical images," *Journal of Systems and Software*, vol. 86, no. 3, pp. 716–727, 2013.
- [60] M. A. Suhail and M. S. Obaidat, "Digital watermarking-based dct and jpeg model," *IEEE Transactions on Instrumentation and Measurement*, vol. 52, no. 5, pp. 1640–1647, 2003.
- [61] Y.-Y. Tsai, D.-S. Tsai, and C.-L. Liu, "Reversible data hiding scheme based on neighboring pixel differences," *Digital Signal Processing*, vol. 23, no. 3, pp. 919–927, 2013.
- [62] H.-J. He, J.-S. Zhang, and F. Chen, "Adjacent-block based statistical detection method for self-embedding watermarking techniques," *Signal Processing*, vol. 89, no. 8, pp. 1557–1566, 2009.
- [63] P. Korus and A. Dziech, "Efficient method for content reconstruction with selfembedding," *IEEE Transactions on Image Processing*, vol. 22, no. 3, pp. 1134– 1147, 2013.
- [64] Z. Qian, G. Feng, X. Zhang, and S. Wang, "Image self-embedding with high-quality restoration capability," *Digital Signal Processing*, vol. 21, no. 2, pp. 278–286, 2011.
- [65] X. Zhang, Z. Qian, Y. Ren, and G. Feng, "Watermarking with flexible selfrecovery quality based on compressive sensing and compositive reconstruction," *IEEE Transactions on Information Forensics and Security*, vol. 6, no. 4, pp. 1223–1232, 2011.
- [66] X. Zhang, S. Wang, Z. Qian, and G. Feng, "Reference sharing mechanism for watermark self-embedding," *IEEE Transactions on Image Processing*, vol. 20, no. 2, pp. 485–495, 2011.
- [67] X. Zhang, S. Wang, Z. Qian, and G. Feng, "Self-embedding watermark with flexible restoration quality," *Multimedia Tools and Applications*, vol. 54, no. 2, pp. 385–395, 2011.

- [68] A. Randall, "A novel semi-fragile watermarking scheme with iterative restoration," 2011.
- [69] S.-J. Lin and J.-C. Lin, "Authentication and recovery of an image by sharing and lattice-embedding," *Journal of Electronic Imaging*, vol. 19, no. 4, pp. 043008–043008, 2010.
- [70] H. Wang, A. T. Ho, and X. Zhao, "A novel fast self-restoration semi-fragile watermarking algorithm for image content authentication resistant to jpeg compression," in *International Workshop on Digital Watermarking*, pp. 72– 85, Springer, 2011.
- [71] X. Zhang, Y. Xiao, and Z. Zhao, "Self-embedding fragile watermarking based on dct and fast fractal coding," *Multimedia Tools and Applications*, vol. 74, no. 15, pp. 5767–5786, 2015.
- [72] R. Chamlawi, A. Khan, A. Idris, and Z. Munir, "A secure semi-fragile watermarking scheme for authentication and recovery of images based on wavelet transform," World Academy of Science, Engineering and Technology, pp. 49– 53, 2006.
- [73] A. Phadikar, S. P. Maity, and M. Mandal, "Novel wavelet-based qim data hiding technique for tamper detection and correction of digital images," *Journal* of Visual Communication and Image Representation, vol. 23, no. 3, pp. 454– 466, 2012.
- [74] R. Chamlawi, A. Khan, and I. Usman, "Authentication and recovery of images using multiple watermarks," *Computers & Electrical Engineering*, vol. 36, no. 3, pp. 578–584, 2010.
- [75] J. A. M. Noriega, B. M. Kurkoski, M. N. Miyatake, and H. P. Meana, "Image authentication and recovery using bch error-correcting codes," *International Journal of Computers*, vol. 5, no. 1, pp. 26–33, 2011.
- [76] L. Rosales-Roldan, M. Cedillo-Hernandez, M. Nakano-Miyatake, H. Perez-Meana, and B. Kurkoski, "Watermarking-based image authentication with recovery capability using halftoning technique," *Signal Processing: Image Communication*, vol. 28, no. 1, pp. 69–83, 2013.

- [77] X. Zhang and S. Wang, "Fragile watermarking with error-free restoration capability," *IEEE Transactions on Multimedia*, vol. 10, no. 8, pp. 1490–1499, 2008.
- [78] X. Zhang, S. Wang, and G. Feng, "Fragile watermarking scheme with extensive content restoration capability," in *International Workshop on Digital Watermarking*, pp. 268–278, Springer, 2009.
- [79] F. Chen, H. He, H.-M. Tai, and H. Wang, "Chaos-based self-embedding fragile watermarking with flexible watermark payload," *Multimedia tools and applications*, vol. 72, no. 1, pp. 41–56, 2014.
- [80] C. Qin, C.-C. Chang, and P.-Y. Chen, "Self-embedding fragile watermarking with restoration capability based on adaptive bit allocation mechanism," *Signal Processing*, vol. 92, no. 4, pp. 1137–1150, 2012.
- [81] A. L. da Cunha, J. Zhou, and M. N. Do, "Nonsubsampled contourilet transform: filter design and applications in denoising," in *IEEE International Conference on Image Processing 2005*, vol. 1, pp. I–749, IEEE, 2005.
- [82] A. L. Da Cunha, J. Zhou, and M. N. Do, "The nonsubsampled contourlet transform: theory, design, and applications," *IEEE transactions on image* processing, vol. 15, no. 10, pp. 3089–3101, 2006.
- [83] K.-M. Hung, T.-W. Chen, W.-K. Su, and C.-N. Kao, "Automatic image authentication and recovery using multiple watermarks," in *Information Science* and Digital Content Technology (ICIDT), 2012 8th International Conference on, vol. 3, pp. 730–735, IEEE, 2012.
- [84] K.-C. Liu, "Self-embedding watermarking scheme for colour images by bi-level moment-preserving technique," *IET Image Processing*, vol. 8, no. 6, pp. 363– 372, 2014.
- [85] A. T. Ho, X. Zhu, and Y. L. Guan, "Image content authentication using pinned sine transform," *EURASIP Journal on Applied Signal Processing*, vol. 2004, pp. 2174–2184, 2004.
- [86] A. Meiri and E. Yudilevich, "A pinned sine transform image coder," IEEE Transactions on Communications, vol. 29, no. 12, pp. 1728–1735, 1981.

- [87] Z. Qian and G. Feng, "Inpainting assisted self recovery with decreased embedding data," *IEEE Signal Processing Letters*, vol. 17, no. 11, pp. 929–932, 2010.
- [88] D.-C. Lou, H.-K. Tso, and J.-L. Liu, "A copyright protection scheme for digital images using visual cryptography technique," *Computer Standards & Interfaces*, vol. 29, no. 1, pp. 125–131, 2007.
- [89] T. K. Das and S. Maitra, "Cryptanalysis of correlation-based watermarking schemes using single watermarked copy," *IEEE Signal Processing Letters*, vol. 11, no. 4, pp. 446–449, 2004.
- [90] S. D. Lin and C.-F. Chen, "A robust dct-based watermarking for copyright protection," *IEEE Transactions on Consumer Electronics*, vol. 46, no. 3, pp. 415– 421, 2000.
- [91] J.-S. Lee and B. Li, "Self-recognized image protection technique that resists large-scale cropping," *IEEE MultiMedia*, vol. 21, no. 1, pp. 60–73, 2014.
- [92] Y. Wang, J. F. Doherty, and R. E. Van Dyck, "A wavelet-based watermarking algorithm for ownership verification of digital images," *IEEE transactions on image processing*, vol. 11, no. 2, pp. 77–88, 2002.
- [93] S. Joo, Y. Suh, J. Shin, and H. Kikuchi, "A new robust watermark embedding into wavelet dc components," *ETRI journal*, vol. 24, no. 5, pp. 401–404, 2002.
- [94] S. Jianhong, L. Junsheng, and L. Zhiyong, "An improved algorithm of digital watermarking based on wavelet transform," in *Computer Science and Information Engineering*, 2009 WRI World Congress on, vol. 7, pp. 280–284, IEEE, 2009.
- [95] M. Kim, D. Li, and S. Hong, "A robust digital watermarking technique for image contents based on dwt-dfrnt multiple transform method," *International Journal of Multimedia and Ubiquitous Engineering*, vol. 9, no. 1, pp. 369–378, 2014.
- [96] M. Hamghalam, S. Mirzakuchaki, and M. A. Akhaee, "Geometric modelling of the wavelet coefficients for image watermarking using optimum detector," *IET Image Processing*, vol. 8, no. 3, pp. 162–172, 2014.

- [97] R. Liu and T. Tan, "An svd-based watermarking scheme for protecting rightful ownership," *Multimedia*, *IEEE Transactions on*, vol. 4, no. 1, pp. 121–128, 2002.
- [98] S. Koliwad, "A comprehensive survey of contemporary researches in watermarking for copyright protection of digital images," *IJCSNS*, vol. 9, no. 4, p. 91, 2009.
- [99] C.-C. Lai and C.-C. Tsai, "Digital image watermarking using discrete wavelet transform and singular value decomposition," *IEEE Transactions on instrumentation and measurement*, vol. 59, no. 11, pp. 3060–3063, 2010.
- [100] X.-P. Zhang and K. Li, "Comments on" an svd-based watermarking scheme for protecting rightful ownership"," *IEEE Transactions on Multimedia*, vol. 7, no. 3, pp. 593–594, 2005.
- [101] M. R. A. Lari, S. Ghofrani, and D. McLernon, "Using curvelet transform for watermarking based on amplitude modulation," *Signal, Image and Video Processing*, vol. 8, no. 4, pp. 687–697, 2014.
- [102] W. Lu and H. Lu, "Robust watermarking based on subsampling and nonnegative matrix factorization," *Informatica*, vol. 19, no. 4, pp. 555–566, 2008.
- [103] C.-C. Chang and H.-W. Tseng, "Vq-based image watermarking using anti-gray coding," *Informatica*, vol. 15, no. 2, pp. 147–160, 2004.
- [104] A. M. Alattar, "Reversible watermark using the difference expansion of a generalized integer transform," *IEEE transactions on image processing*, vol. 13, no. 8, pp. 1147–1156, 2004.
- [105] R. G. Van Schyndel, A. Z. Tirkel, and C. F. Osborne, "A digital watermark," in *Image Processing*, 1994. Proceedings. ICIP-94., IEEE International Conference, vol. 2, pp. 86–90, IEEE, 1994.
- [106] Y. Naderahmadian and S. Hosseini-Khayat, "Fast watermarking based on qr decomposition in wavelet domain," in *Intelligent Information Hiding and Mul*timedia Signal Processing (IIH-MSP), 2010 Sixth International Conference on, pp. 127–130, IEEE, 2010.

- [107] H.-y. Chen and Y.-s. Zhu, "A robust watermarking algorithm based on qr factorization and dct using quantization index modulation technique," *Journal* of *Zhejiang University SCIENCE C*, vol. 13, no. 8, pp. 573–584, 2012.
- [108] Y. Naderahmadian and S. Hosseini-Khayat, "Fast and robust watermarking in still images based on qr decomposition," *Multimedia Tools and Applications*, vol. 72, no. 3, pp. 2597–2618, 2014.
- [109] J.-M. Guo and Y.-F. Liu, "Hiding multitone watermarks in halftone images," *Ieee Multimedia*, vol. 17, no. 1, p. 65, 2010.
- [110] P.-C. Su, Y.-C. Chang, and C.-Y. Wu, "Geometrically resilient digital image watermarking by using interest point extraction and extended pilot signals," *IEEE transactions on information forensics and security*, vol. 8, no. 12, pp. 1897–1908, 2013.
- [111] T.-Y. Lee and S. D. Lin, "Dual watermark for image tamper detection and recovery," *Pattern recognition*, vol. 41, no. 11, pp. 3497–3506, 2008.
- [112] J. C. Patra, J. E. Phua, and C. Bornand, "A novel dct domain crt-based watermarking scheme for image authentication surviving jpeg compression," *Digital Signal Processing*, vol. 20, no. 6, pp. 1597–1611, 2010.
- [113] I. Nasir, Y. Weng, J. Jiang, and S. Ipson, "Multiple spatial watermarking technique in color images," *Signal, Image and Video Processing*, vol. 4, no. 2, pp. 145–154, 2010.
- [114] G. Bhatnagar, Q. J. Wu, and B. Raman, "A new robust adjustable logo watermarking scheme," *Computers & Security*, vol. 31, no. 1, pp. 40–58, 2012.
- [115] E. H. Elshazly, O. S. Faragallah, A. M. Abbas, M. A. Ashour, E.-S. M. El-Rabaie, H. Kazemian, S. A. Alshebeili, F. E. A. El-Samie, and H. S. El-sayed, "Robust and secure fractional wavelet image watermarking," *Signal, Image* and Video Processing, vol. 9, no. 1, pp. 89–98, 2015.
- [116] E. Walia and A. Suneja, "A robust watermark authentication technique based on weber's descriptor," *Signal, Image and Video Processing*, vol. 8, no. 5, pp. 859–872, 2014.

- [117] X. Zhang and S. Wang, "Fragile watermarking scheme using a hierarchical mechanism," *Signal processing*, vol. 89, no. 4, pp. 675–679, 2009.
- [118] S. Wang, D. Zheng, J. Zhao, W. J. Tam, and F. Speranza, "Adaptive watermarking and tree structure based image quality estimation," *IEEE Transactions on Multimedia*, vol. 16, no. 2, pp. 311–325, 2014.
- [119] E. Delp and O. Mitchell, "Image compression using block truncation coding," *IEEE transactions on Communications*, vol. 27, no. 9, pp. 1335–1342, 1979.
- [120] C.-C. Chang, C.-Y. Lin, and Y.-H. Fan, "Lossless data hiding for color images based on block truncation coding," *Pattern Recognition*, vol. 41, no. 7, pp. 2347–2357, 2008.
- [121] B. C. Dhara and B. Chanda, "Block truncation coding using pattern fitting," *Pattern Recognition*, vol. 37, no. 11, pp. 2131–2139, 2004.
- [122] P. Franti and O. Nevalainen, "Block truncation coding with entropy coding," *IEEE transactions on communications*, vol. 43, no. 2/3/4, pp. 1677–1685, 1995.
- [123] M. Lema and O. Mitchell, "Absolute moment block truncation coding and its application to color images," *IEEE Transactions on communications*, vol. 32, no. 10, pp. 1148–1157, 1984.
- [124] Y. Wu and D. C. Coll, "Btc-vq-dct hybrid coding of digital images," *IEEE Transactions on communications*, vol. 39, no. 9, pp. 1283–1287, 1991.
- [125] S. Dadkhah, A. A. Manaf, Y. Hori, A. E. Hassanien, and S. Sadeghi, "An effective svd-based image tampering detection and self-recovery using active watermarking," *Signal Processing: Image Communication*, vol. 29, no. 10, pp. 1197 – 1210, 2014.
- [126] D. Singh and S. K. Singh, "Dct based efficient fragile watermarking scheme for image authentication and restoration," *Multimedia Tools and Applications*, pp. 1–25, 2015.
- [127] Y.-Z. He and Z. Han, "A fragile watermarking scheme with pixel-wise alteration localisation," in 2008 9th International Conference on Signal Processing, pp. 2201–2204, 2008.

- [128] S. Shivani, D. Singh, and S. Agarwal, "Dct based approach for tampered image detection and recovery using block wise fragile watermarking scheme," in *Pattern Recognition and Image Analysis*, pp. 640–647, Springer, 2013.
- [129] P. Korus and A. Dziech, "Adaptive self-embedding scheme with controlled reconstruction performance," *Information Forensics and Security, IEEE Transactions on*, vol. 9, no. 2, pp. 169–181, 2014.
- [130] Z. Xia, X. Wang, X. Sun, and B. Wang, "Steganalysis of least significant bit matching using multi-order differences," *Security and Communication Net*works, vol. 7, no. 8, pp. 1283–1291, 2014.
- [131] Z. Xia, X. Wang, X. Sun, Q. Liu, and N. Xiong, "Steganalysis of lsb matching using differences between nonadjacent pixels," *Multimedia Tools and Applications*, pp. 1–16, 2014.
- [132] M. U. Celik, G. Sharma, E. Saber, and A. M. Tekalp, "Hierarchical watermarking for secure image authentication with localization," *Image Processing*, *IEEE Transactions on*, vol. 11, no. 6, pp. 585–595, 2002.
- [133] C. Li, Y. Wang, B. Ma, and Z. Zhang, "A novel self-recovery fragile watermarking scheme based on dual-redundant-ring structure," *Computers & Electrical Engineering*, vol. 37, no. 6, pp. 927 – 940, 2011.
- [134] P. L. Lin, C.-K. Hsieh, and P.-W. Huang, "A hierarchical digital watermarking method for image tamper detection and recovery," *Pattern Recognition*, vol. 38, no. 12, pp. 2519 – 2529, 2005.
- [135] M. Holliman and N. Memon, "Counterfeiting attacks on oblivious block-wise independent invisible watermarking schemes," *Image Processing, IEEE Transactions on*, vol. 9, pp. 432–441, Mar 2000.
- [136] C. Yan, Y. Zhang, J. Xu, F. Dai, J. Zhang, Q. Dai, and F. Wu, "Efficient parallel framework for heve motion estimation on many-core processors," *Circuits* and Systems for Video Technology, IEEE Transactions on, vol. 24, no. 12, pp. 2077–2089, 2014.

- [137] C. Yan, Y. Zhang, J. Xu, F. Dai, L. Li, Q. Dai, and F. Wu, "A highly parallel framework for heve coding unit partitioning tree decision on many-core processors," *Signal Processing Letters, IEEE*, vol. 21, no. 5, pp. 573–576, 2014.
- [138] C. Yan, Y. Zhang, F. Dai, X. Wang, L. Li, and Q. Dai, "Parallel deblocking filter for heve on many-core processor," *Electronics Letters*, vol. 50, no. 5, pp. 367–368, 2014.
- [139] R. B. Wolfgang, C. I. Podilchuk, and E. J. Delp, "Perceptual watermarks for digital images and video," *Proceedings of the IEEE*, vol. 87, no. 7, pp. 1108– 1126, 1999.
- [140] S. Riaz, M. Y. Javed, and M. A. Anjum, "Invisible watermarking schemes in spatial and frequency domains," in *Emerging Technologies*, 2008. ICET 2008. 4th International Conference on, pp. 211–216, IEEE, 2008.
- [141] S. M. Rahman, M. O. Ahmad, and M. Swamy, "A new statistical detector for dwt-based additive image watermarking using the gauss-hermite expansion," *Image Processing, IEEE Transactions on*, vol. 18, no. 8, pp. 1782–1796, 2009.
- [142] S. Wang, D. Zheng, J. Zhao, W. J. Tam, and F. Speranza, "Adaptive watermarking and tree structure based image quality estimation," *Multimedia*, *IEEE Transactions on*, vol. 16, no. 2, pp. 311–325, 2014.
- [143] X. Kang, R. Yang, and J. Huang, "Geometric invariant audio watermarking based on an lcm feature," *Multimedia*, *IEEE Transactions on*, vol. 13, no. 2, pp. 181–190, 2011.
- [144] C.-J. Cheng, W.-J. Hwang, H.-Y. Zeng, and Y.-C. Lin, "A fragile watermarking algorithm for hologram authentication," *Journal of Display Technology*, vol. 10, no. 4, pp. 263–271, 2014.
- [145] H. He, J. Zhang, and F. Chen, "Block-wise fragile watermarking scheme based on scramble encryption," in *Bio-Inspired Computing: Theories and Applications*, 2007. BIC-TA 2007. Second International Conference on, pp. 216–220, IEEE, 2007.

- [146] X. Li, H. Zhang, and M. Chen, "Self-recovery fragile watermarking based on superior block-wise tamper detection," in *Signal Processing (ICSP)*, 2012 *IEEE 11th International Conference on*, vol. 3, pp. 1697–1700, IEEE, 2012.
- [147] C.-S. Lu and H.-Y. Liao, "Structural digital signature for image authentication: an incidental distortion resistant scheme," *Multimedia*, *IEEE Transactions on*, vol. 5, pp. 161–173, June 2003.
- [148] W. Stallings, Network security essentials: applications and standards. Pearson Education India, 2007.
- [149] Q. Sun and S.-F. Chang, "A secure and robust digital signature scheme for jpeg2000 image authentication," *Multimedia*, *IEEE Transactions on*, vol. 7, no. 3, pp. 480–494, 2005.
- [150] C. Li, A. Zhang, Z. Liu, L. Liao, and D. Huang, "Semi-fragile self-recoverable watermarking algorithm based on wavelet group quantization and double authentication," *Multimedia Tools and Applications*, pp. 1–24, 2014.
- [151] D. Singh and S. K. Singh, "Effective self-embedding watermarking scheme for image tampered detection and localization with recovery capability," *Journal* of Visual Communication and Image Representation, vol. 38, pp. 775 – 789, 2016.
- [152] X. Qi and X. Xin, "A singular-value-based semi-fragile watermarking scheme for image content authentication with tamper localization," *Journal of Visual Communication and Image Representation*, 2015.
- [153] J. Wang, S. Lian, G. Liu, Y. Dai, Z. Liu, and Z. Ren, "Secure multimedia watermarking authentication in wavelet domain," *Journal of Electronic Imaging*, vol. 17, no. 3, pp. 033010–033010, 2008.
- [154] K. Maeno, Q. Sun, S.-F. Chang, and M. Suto, "New semi-fragile image authentication watermarking techniques using random bias and nonuniform quantization," *Multimedia*, *IEEE Transactions on*, vol. 8, no. 1, pp. 32–45, 2006.
- [155] W.-H. Lin, Y.-R. Wang, and S.-J. Horng, "A wavelet-tree-based watermarking method using distance vector of binary cluster," *Expert Systems with Applications*, vol. 36, no. 6, pp. 9869–9878, 2009.

- [156] T. Bianchi and A. Piva, "Secure watermarking for multimedia content protection: A review of its benefits and open issues," *Signal Processing Magazine*, *IEEE*, vol. 30, no. 2, pp. 87–96, 2013.
- [157] I. J. Cox, M. L. Miller, J. A. Bloom, and C. Honsinger, *Digital watermarking*, vol. 53. Springer, 2002.
- [158] P. Singh and R. Chadha, "A survey of digital watermarking techniques, applications and attacks," *International Journal of Engineering and Innovative Technology (IJEIT)*, vol. 2, no. 9, 2013.
- [159] A. Tareef and A. Al-Ani, "A highly secure oblivious sparse coding-based watermarking system for ownership verification," *Expert Systems with Applications*, vol. 42, no. 4, pp. 2224–2233, 2015.
- [160] E. T. Lin and E. J. Delp, "A review of fragile image watermarks," in Proceedings of the Multimedia and Security Workshop (ACM Multimedia'99) Multimedia Contents, pp. 25–29, Citeseer, 1999.
- [161] E. Ganic and A. M. Eskicioglu, "Robust embedding of visual watermarks using discrete wavelet transform and singular value decomposition," *Journal* of *Electronic Imaging*, vol. 14, no. 4, pp. 043004–043004, 2005.
- [162] S.-J. Horng, D. Rosiyadi, T. Li, T. Takao, M. Guo, and M. K. Khan, "A blind image copyright protection scheme for e-government," *Journal of Visual Communication and Image Representation*, vol. 24, no. 7, pp. 1099–1105, 2013.
- [163] W.-H. Lin, S.-J. Horng, T.-W. Kao, R.-J. Chen, Y.-H. Chen, C.-L. Lee, and T. Terano, "Image copyright protection with forward error correction," *Expert* systems with applications, vol. 36, no. 9, pp. 11888–11894, 2009.
- [164] Y. Wang, J. F. Doherty, and R. E. Van Dyck, "A wavelet-based watermarking algorithm for ownership verification of digital images," *Image Processing*, *IEEE Transactions on*, vol. 11, no. 2, pp. 77–88, 2002.
- [165] M. Hamghalam, S. Mirzakuchaki, and M. A. Akhaee, "Geometric modeling of the wavelet coefficients for image watermarking," in *Machine Vision and Image Processing (MVIP)*, 2013 8th Iranian Conference on, pp. 27–32, IEEE, 2013.

- [166] N. M. Makbol and B. E. Khoo, "Robust blind image watermarking scheme based on redundant discrete wavelet transform and singular value decomposition," *AEU-International Journal of Electronics and Communications*, vol. 67, no. 2, pp. 102–112, 2013.
- [167] J. E. Fowler, "The redundant discrete wavelet transform and additive noise," Signal Processing Letters, IEEE, vol. 12, no. 9, pp. 629–632, 2005.
- [168] A. K. Gupta and M. S. Raval, "A robust and secure watermarking scheme based on singular values replacement," *Sadhana*, vol. 37, no. 4, pp. 425–440, 2012.
- [169] C.-M. Pun, "A novel dft-based digital watermarking system for images," in Signal Processing, 2006 8th International Conference on, vol. 2, IEEE, 2006.
- [170] V. Solachidis and I. Pitas, "Optimal detector for multiplicative watermarks embedded in the dft domain of non-white signals," *EURASIP Journal on Applied Signal Processing*, vol. 2004, pp. 2522–2532, 2004.
- [171] M. S. Islam and U. Chong, "Performance of a hybrid dct svd visually imperceptible digital watermarking against signal processing attacks," in *Computer Science and its Applications*, pp. 7–14, Springer, 2015.
- [172] D. Rosiyadi, S.-J. Horng, P. Fan, X. Wang, M. K. Khan, and Y. Pan, "Copyright protection for e-government document images," *MultiMedia*, *IEEE*, vol. 19, no. 3, pp. 62–73, 2012.
- [173] W.-H. Lin, S.-J. Horng, T.-W. Kao, P. Fan, C.-L. Lee, and Y. Pan, "An efficient watermarking method based on significant difference of wavelet coefficient quantization," *Multimedia*, *IEEE Transactions on*, vol. 10, no. 5, pp. 746–757, 2008.
- [174] W.-H. Lin, Y.-R. Wang, S.-J. Horng, T.-W. Kao, and Y. Pan, "A blind watermarking method using maximum wavelet coefficient quantization," *Expert* Systems with Applications, vol. 36, no. 9, pp. 11509–11516, 2009.
- [175] M. Ali and C. W. Ahn, "Comments on optimized gray-scale image watermarking using dwt-svd and firefly algorithm," *Expert Systems with Applications*, vol. 42, no. 5, pp. 2392–2394, 2015.

- [176] C. Jain, S. Arora, and P. K. Panigrahi, "A reliable svd based watermarking schem," arXiv preprint arXiv:0808.0309, 2008.
- [177] E. Yavuz and Z. Telatar, "Comments on a digital watermarking scheme based on singular value decomposition and tiny genetic algorithm," *Digital Signal Processing*, vol. 23, no. 4, pp. 1335–1336, 2013.
- [178] G. Bhatnagar, Q. M. J. Wu, and P. K. Atrey, "Secure randomized image watermarking based on singular value decomposition," ACM Trans. Multimedia Comput. Commun. Appl., vol. 10, pp. 4:1–4:21, Dec. 2013.
- [179] R.-S. Run, S.-J. Horng, J.-L. Lai, T.-W. Kao, and R.-J. Chen, "An improved svd-based watermarking technique for copyright protection," *Expert Systems* with Applications, vol. 39, no. 1, pp. 673–689, 2012.
- [180] M. Ali, C. W. Ahn, and M. Pant, "A robust image watermarking technique using svd and differential evolution in dct domain," *Optik-International Journal* for Light and Electron Optics, vol. 125, no. 1, pp. 428–434, 2014.
- [181] M. Keyvanpour and F. M. Bayat, "Blind image watermarking method based on chaotic key and dynamic coefficient quantization in the dwt domain," *Mathematical and Computer Modelling*, vol. 58, no. 1, pp. 56–67, 2013.
- [182] M. Ali and C. W. Ahn, "An optimized watermarking technique based on self-adaptive de in dwt-svd transform domain," *Signal Processing*, vol. 94, pp. 545–556, 2014.
- [183] V. Aslantas, "An optimal robust digital image watermarking based on svd using differential evolution algorithm," *Optics Communications*, vol. 282, no. 5, pp. 769–777, 2009.
- [184] G. Bhatnagar and B. Raman, "A new robust reference watermarking scheme based on dwt-svd," *Computer Standards & Interfaces*, vol. 31, no. 5, pp. 1002– 1013, 2009.
- [185] F. Huang and Z.-H. Guan, "A hybrid svd-dct watermarking method based on lpsnr," *Pattern Recognition Letters*, vol. 25, no. 15, pp. 1769–1775, 2004.

- [186] S. Lagzian, M. Soryani, and M. Fathy, "Robust watermarking scheme based on rdwt-svd: Embedding data in all subbands," in *Artificial Intelligence and Signal Processing (AISP)*, 2011 International Symposium on, pp. 48–52, IEEE, 2011.
- [187] C.-C. Lai, "A digital watermarking scheme based on singular value decomposition and tiny genetic algorithm," *Digital Signal Processing*, vol. 21, no. 4, pp. 522–527, 2011.
- [188] A. Mishra, C. Agarwal, A. Sharma, and P. Bedi, "Optimized gray-scale image watermarking using dwt-svd and firefly algorithm," *Expert Systems with Applications*, vol. 41, no. 17, pp. 7858–7867, 2014.
- [189] S. Rastegar, F. Namazi, K. Yaghmaie, and A. Aliabadian, "Hybrid watermarking algorithm based on singular value decomposition and radon transform," *AEU-International Journal of Electronics and Communications*, vol. 65, no. 7, pp. 658–663, 2011.
- [190] J.-M. Shieh, D.-C. Lou, and M.-C. Chang, "A semi-blind digital watermarking scheme based on singular value decomposition," *Computer Standards & Interfaces*, vol. 28, no. 4, pp. 428–440, 2006.
- [191] L. Wu, J. Zhang, W. Deng, and D. He, "Arnold transformation algorithm and anti-arnold transformation algorithm," in *Information Science and Engineering (ICISE), 2009 1st International Conference on*, pp. 1164–1167, IEEE, 2009.
- [192] M. Abdullatif, A. M. Zeki, J. Chebil, and T. S. Gunawan, "Properties of digital image watermarking," in Signal Processing and its Applications (CSPA), 2013 IEEE 9th International Colloquium on, pp. 235–240, IEEE, 2013.
- [193] M. Barni, F. Bartolini, and A. Piva, "Improved wavelet-based watermarking through pixel-wise masking," *IEEE transactions on image processing*, vol. 10, no. 5, pp. 783–791, 2001.
- [194] B. Pandhwal and D. Chaudhari, "An overview of digital watermarking techniques," Int. J. Soft Comput. Eng, vol. 3, no. 1, pp. 416–420, 2013.

- [195] L. Pérez-Freire, P. Comesana, J. R. Troncoso-Pastoriza, and F. Pérez-González, "Watermarking security: a survey," in *Transactions on Data Hiding* and Multimedia Security I, pp. 41–72, Springer, 2006.
- [196] G. Voyatzis and I. Pitas, "The use of watermarks in the protection of digital multimedia products," *Proceedings of the IEEE*, vol. 87, no. 7, pp. 1197–1207, 1999.
- [197] G. K. Wallace, "The jpeg still picture compression standard," *IEEE transac*tions on consumer electronics, vol. 38, no. 1, pp. xviii–xxxiv, 1992.
- [198] G. Friedman, "The trustworthy digital camera: restoring credibility to the photographic image," *Consumer Electronics, IEEE Transactions on*, vol. 39, pp. 905–910, Nov 1993.
- [199] F. Peng, R.-S. Guo, C.-T. Li, and M. Long, "A semi-fragile watermarking algorithm for authenticating 2d {CAD} engineering graphics based on logpolar transformation," *Computer-Aided Design*, vol. 42, no. 12, pp. 1207 – 1216, 2010.
- [200] L. Tian, N. Zheng, J. Xue, C. Li, and X. Wang, "An integrated visual saliencybased watermarking approach for synchronous image authentication and copyright protection," *Signal Processing: Image Communication*, vol. 26, no. 89, pp. 427 – 437, 2011.
- [201] E. Nezhadarya, Z. J. Wang, and R. K. Ward, "Image quality monitoring using spread spectrum watermarking," in *Image Processing (ICIP)*, 2009 16th IEEE International Conference on, pp. 2233–2236, IEEE, 2009.
- [202] J. Wang, S. Lian, G. Liu, Y. Dai, Z. Liu, and Z. Ren, "Secure multimedia watermarking authentication in wavelet domain," *Journal of Electronic Imaging*, vol. 17, no. 3, pp. 033010–033010, 2008.
- [203] S. Bravo-Solorio and A. K. Nandi, "Secure fragile watermarking method for image authentication with improved tampering localisation and self-recovery capabilities," *Signal Processing*, vol. 91, no. 4, pp. 728–739, 2011.

- [204] L. Leng, J. Zhang, J. Xu, M. K. Khan, and K. Alghathbar, "Dynamic weighted discrimination power analysis in dct domain for face and palmprint recognition," in *Information and Communication Technology Convergence (ICTC)*, 2010 International Conference on, pp. 467–471, IEEE, 2010.
- [205] M. Ouhsain and A. B. Hamza, "Image watermarking scheme using nonnegative matrix factorization and wavelet transform," *Expert Systems with Applications*, vol. 36, no. 2, pp. 2123–2129, 2009.
- [206] S.-J. Horng, D. Rosiyadi, P. Fan, X. Wang, and M. K. Khan, "An adaptive watermarking scheme for e-government document images," *Multimedia Tools* and Applications, vol. 72, no. 3, pp. 3085–3103, 2014.