

# Inverse Mojette Transform Implementation and the MTTool

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**Abstract**— The Mojette Transform (MOT) is originated from France introduced by J-P. Guédon. There are several different variations of MOT applications nowadays which are used in different areas such as tomography, internet distributed data bases, encoding, multimedia error correction, or The Mojette Transform Tool (MTTool) which was created for testing purposes, etc. This paper presents the some aspects of the MTTool and IMOT implementation. The logic circuitry of the IMOT compared with the MOT shows that the reconstruction process is more complicated. The MOT and IMOT hardware implementations are based on the sliding window method and the stepping window method.

## REFERENCES

- [1] Szoboszlai P.: "Real Time Security System Based on Mojette Transform", PhD Thesis, Technical University of Kosice, 2011, pp 158.
- [2] Turan J., Szoboszlai P., Vásárhelyi J., "Mojette Transform Software – Hardware Implementation and its Applications", in Infocommunication Journal, HU ISSN 2061-2079, 2011 • Vol. III • Nr. 1 pp. 39-47.
- [3] Serfözö, P., Vásárhelyi, J.,: "Development Work of a Mojette Transform Based Hardware Codec For Distributed Database Systems", in Proceedings of 8th International Carpathian Control Conference ICC2007, Strebse Pleso, Slovakia ISBN 987-80-8073-805-1, 2007 May 24-27, pp. 631-635,.
- [4] Braudaway,G.W.-Magerlein,K.A.-Mintzer,F.: *Protecting publicly available images with a visible image watermark*, in SPIE/IS&T Optical Security and Counterfeit Deterrence Techniques, Electronis Imaging, Vol. 3016, February 1997, pp. 126-133.
- [5] Coudert,F.-Benois-Pineau,J.-Le Lann,P.-Y.-Barba,D.: Binkey: A System for Video Content Analysis „on the fly”, ICMCS, Vol. 1 1999, pp. 679-684.
- [6] Guédon,J.P., Normand,N.: "The Mojette transform: applications for image analysis and coding", in VCIP 97, February 1997, Vol. 3024 of Proc. SPIE, pp. 1220-1230.
- [7] Guédon, J.P.-Normand,N.: "The Mojette Transform: The First Ten Years", in Lecture Notes in computer Science, Springer Berlin/Heidelberg, Vol. 3429/2005, March 2005, pp. 79-91.
- [8] Normand, N., Guedon,J.P.: "The Mojette Transform: a Redundant Representation, Comptes – rendus de l'". Academic de Sciences de Paris, Theoretical Computer Science, Paris, 198, pp. 124-128.
- [9] Guedon, J.P., Parrein, B. Normand, N.: "Internet Distributed Image Information System". in Int. Comp. Aided Eng., Vol. 8, 201, pp. 205-214.
- [10] Hung-Chun,L.: "New digital image encryption/decryption algorithms and hidden cryptography algorithm", Master Thesis, Institute of Communication Engineering, Tatung University, july 2004.
- [11] Wu, J., Olivier, C., Chatellier, C., Poussard, A-M.: *Redundant Transformation on the Binary Data and Its Applications to Image Coding and Transmisssion*, IEEE APCCAS 2000, Dec 2000, pp. 763-766
- [12] Katz, M.: "Questions of uniqueness and resolution in reconstruction from projections", in Lecture Notes in Biomathematics, Sprineger-Verlag, 1979.
- [13] Hung-Chun,L.: "New digital image encryption/decryption algorithms and hidden cryptography algorithm", Master Thesis, Institute of Communication Engineering, Tatung University, july 2004.
- [14] Szoboszlai P., Vásárhelyi J., Turán J., Serfözö P., : *MTTool Software Tool and Low Complexity Hardware for Mojette Transformation*, in Studies in Computational Intelligence Volume 313, 2010, , ISBN 978-3-642-15219-1, e-ISBN 978-3-642-15200-7, Library of Congress Control Number: 2010934964, Springer-Verlag, 2010, pp. 15-26
- [15] Draper B., Bohm Hammes W., J., Najjar W., Beveridge R., Ross C., Chawathe M., Desai M., Bins J.: "Compiling SA-C Programs to FPGAs: Performance Results",.International Conference on Vision Systems, Vancouver, Springer-Verlag, July 7-8, 2001. p. 220-235.