

**Author(s):** Ascenso, J (Ascenso, Joao); Brites, C (Brites, Catarina); Pereira, F (Pereira, Fernando)

**Editor(s):** Said, A; Guleryuz, OG

**Title:** Compression Efficiency Analysis of Wyner-Ziv Video Coding with Motion Compensated Side Information Interpolation

**Source:** VISUAL INFORMATION PROCESSING AND COMMUNICATION, 7543: Art. No. 75430D 2010

**Book series title:** Proceedings of SPIE-The International Society for Optical Engineering

**Language:** English

**Document Type:** Proceedings Paper

**Conference Title:** Conference on Visual Information Processing and Communication

**Conference Date:** JAN 19-21, 2010

**Conference Location:** San Jose, CA

**Conference Sponsors:** IS & T (Soc Imaging Sci & Technol).; SPIE.

**Author Keywords:** Wyner-Ziv video coding; side information; motion compensated frame interpolation

**KeyWords Plus:** PREDICTION

**Abstract:** The Wyner-Ziv video coding (WZVC) rate distortion performance is highly dependent on the quality of the side information, an estimation of the original frame, created at the decoder. This paper, characterizes the WZVC efficiency when motion compensated frame interpolation (MCFI) techniques are used to generate the side information, a difficult problem in WZVC especially because the decoder only has available some reference decoded frames. The proposed WZVC compression efficiency rate model relates the power spectral of the estimation error to the accuracy of the MCFI motion field. Then, some interesting conclusions may be derived related to the impact of the motion field smoothness and the correlation to the true motion trajectories on the compression performance.

**Addresses:** [Ascenso, Joao] Inst Super Engrn Lisboa, Inst Telecomunicacoes, P-1049001 Lisbon, Portugal

**Reprint Address:** Ascenso, J, Inst Super Engrn Lisboa, Inst Telecomunicacoes, Av Rovisco Pais, P-1049001 Lisbon, Portugal.

**E-mail Address:** joao.ascenso@lx.it.pt

**Publisher:** SPIE-INT SOC OPTICAL ENGINEERING

**Publisher Address:** 1000 20TH ST, PO BOX 10, BELLINGHAM, WA 98227-0010 USA

**ISSN:** 0277-786X

**ISBN:** 978-0-8194-7936-5

**Article Number:** 75430D

**DOI:** 10.1117/12.840544

**ISI Document Delivery No.:** BRR40