

Title: Design and performance of a novel low-density parity-check code for distributed video coding

Author(s): Ascenso, Joao ^[1]; Brites, Catarina; Pereira, Fernando

Source: 2008 15th IEEE International Conference on Image Processing (ICIP 2008) **Book Series:** IEEE International Conference on Image Processing (ICIP) **Volume:** 1-5 **Pages:** 1116-1119

DOI: [10.1109/ICIP.2008.4711955](https://doi.org/10.1109/ICIP.2008.4711955) **Published:** 2008

Conference: 15th IEEE International Conference on Image Processing (ICIP 2008) **Location:** San Diego, CA **Date:** Oct 12-15, 2008 **Sponsor(s):** IEEE Signal Proc Soc

Document Type: Proceedings Paper

Language: English

Abstract: Low-density parity-check (LDPC) codes are nowadays one of the hottest topics in coding theory, notably due to their advantages in terms of bit error rate performance and low complexity. In order to exploit the potential of the Wyner-Ziv coding paradigm, practical distributed video coding (DVC) schemes should use powerful error correcting codes with near-capacity performance. In this paper, new ways to design LDPC codes for the DVC paradigm are proposed and studied. The new LDPC solutions rely on merging parity-check nodes, which corresponds to reduce the number of rows in the parity-check matrix. This allows to change gracefully the compression ratio of the source (DCT coefficient bitplane) according to the correlation between the original and the side information. The proposed LDPC codes reach a good performance for a wide range of source correlations and achieve a better RD performance when compared to the popular turbo codes.

Author Keywords: Wyner-Ziv video coding; LDPC code

Reprint Address: Ascenso, J (reprint author) – Inst Super Engn Lisboa, Lisbon, Portugal.

Addresses:

[1] Inst Super Engn Lisboa, Lisbon, Portugal

E-mail Addresses: joao.ascenso@lx.it.pt; catarina.brites@lx.it.pt; fp@lx.it.pt

Publisher: IEEE

Publisher Address: 345 E 47TH ST, New York, NY 10017 USA

ISSN: 1522-4880

ISBN: 978-1-4244-1765-0

Citation: ASCENSO, Joao; BRITES, Catarina; PEREIRA, Fernando - Design and performance of a novel low-density parity-check code for distributed video coding. 2008 15th IEEE International Conference on Image Processing (ICIP 2008). ISSN 1522-4880. ISBN 978-1-4244-1765-0. Vol. 1-5. (2008), p. 1116-1119.