



THE CHINESE UNIVERSITY OF HONG KONG
 Institute of Network Coding
 and
 Department of Information Engineering
Seminar



**Low Complexity Iterative Decoding Using
 Convolutional Doubly Orthogonal Codes**

By
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The Chinese University of Hong Kong

Abstract

A novel iterative decoding technique using systematic doubly orthogonal convolutional codes is presented. The technique employs the well known threshold decoding technique and does not use any interleavers, either at the encoding nor at the decoding process. Novel doubly orthogonal convolutional codes have been discovered and analyzed. Bit error performance results are provided, indicating that the technique may be attractive for high speed low complexity applications at moderate values of signal to noise ratios. Extension of the approach using recursive encoding process allows a substantial improvement of the performances especially at low values of the signal to noise ratio.

Biography

David Haccoun (S'62-M'67-SM'84-F'93-LF'03) received the Engineer and B.A.Sc. degrees (Magna Cum Laude) in Engineering Physics from École Polytechnique de Montréal, Montreal, Canada, the S.M. degree in Electrical Engineering from M.I.T., Cambridge, MA, and the Ph.D. degree in Electrical Engineering from McGill University, Montreal, Canada. Since 1966 he has been with the Department of Electrical Engineering, École Polytechnique de Montréal, where he is Professor of Electrical Engineering, since 1980 and was the founding Head of the Communication and Computer Section. He was a Visiting Research Professor at Concordia University, Montreal, INRIA Laboratories, Paris, France, Lund University, Lund, Sweden, École de technologie supérieure in Montreal, the University of Victoria, Victoria, Canada, and at the Advanced Study Institute of the University of British Columbia, Vancouver, Canada.

From 1990 to 2002, he was a Researcher at the Canadian Institute for Telecommunications Research, under the National Centers of Excellence of the Government of Canada. His research interests include communication theory, theory and applications of error-control coding, wireless and mobile communications, and digital communications systems by satellite. He is the author or co-author of over 300 journal papers and conferences papers in these areas. He holds a US patent on an Error Control Technique, is a coauthor of the books *The Communications Handbook* (CRC Press, 1997 and IEEE Press, 2001), *The Encyclopedia of Telecommunications* (J. Wiley, 2003), and *Digital Communications by Satellite: Modulation, Multiple-Access and Coding* (J. Wiley, 1981). A Japanese translation of that book was published in 1984. Dr. Haccoun is a Fellow of IEEE, a Fellow of the Engineering Institute of Canada. He is a Member of the Order of Engineers of Quebec, Canada; Sigma Xi; The New York Academy of Sciences; the American Association for the Advancement of Sciences. He has been elected member of the Board of Governors, IEEE VTS, a Member of the Board of the Telecommunications Engineering Management Institute of Canada, and was a Member of the Board of the Communications Research Centre, Ottawa, Canada. He was a general co-chair of the IEEE VTC 2006-Fall conference in Montreal.

*** ALL ARE WELCOME ****

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