Abstract
In distributed source coding, ambiguity is usually introduced in the encoding process as it permits multiple plaintext sequences encoded to the same codeword. All these plaintext sequences are decodable and are considered as candidates at the decoder. With the help of side information, the decoder is able to determine which sequence in the candidate set is the best choice. Both the cardinality and the minimum Hamming distance of the candidate set are significant to the decoding performance. In this work, a Slepian-Wolf code based on arithmetic coding is studied. By employing the interval swapping technique, a linear code is incorporated into binary arithmetic coding. The incorporated linear code improves the minimum Hamming distance within the candidate set which leads to a lower bit error probability. Moreover, binary arithmetic coding exploits the a priori knowledge of the source to reduce the cardinality of the candidate set. Simulation results show that this approach leads to a superior performance with linear encoding complexity.

Brief Biography
Junwei Zhou received the B.S. degree from Hunan University, and the M.S. degree from Shenzhen University. Currently, he is pursuing the Ph.D. degree with the Department of Electronic Engineering, City University of Hong Kong. His current research interests include security, distributed source coding, as well as the applications of source coding in video and image processing.