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JIA et al.(10) **Pub. No.: US 2022/0352907 A1**(43) **Pub. Date: Nov. 3, 2022**(54) **SYSTEM AND METHOD FOR HYBRID-ARQ****H03M 13/11** (2006.01)**H04L 1/00** (2006.01)(71) Applicants: **MING JIA**, OTTAWA (CA);
JIANGLEI MA, OTTAWA (CA)(52) **U.S. Cl.****CPC** **H03M 13/2942** (2013.01); **H04L 1/1819**
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13/1111 (2013.01); **H04L 1/0061** (2013.01)(72) Inventors: **MING JIA**, OTTAWA (CA);
JIANGLEI MA, OTTAWA (CA)(73) Assignee: **HUAWEI TECHNOLOGIES CO.,**
LTD., SHENZHEN (CN)

(57)

ABSTRACT

Systems and methods are disclosed for providing H-ARQ transmissions in respect of a set of horizontal code blocks are combined in a code. Retransmissions contain vertical parity check blocks which are determined from verticals from the set of horizontal code blocks. Once all the vertical parity check blocks have been transmitted, a new set may be determined after performing interleaving upon either the content of the horizontal code blocks, in the case of non-systematic horizontal code blocks, or over the content of encoder input bits in the place of systematic horizontal code blocks. The interleaving may be bitwise or bit subset-wise. The retransmissions do not contain any of the original bits. In the decoder, soft decisions are produced, and nothing needs to be discarded; decoding will typically improve with each retransmission.

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