

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Hui Jin

Application No.: 12/165,606

Confirmation No.: 2149

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Art Unit: 2611

For: SERIAL CONCATENATION OF
INTERLEAVED CONVOLUTIONAL CODES
FORMING TURBO-LIKE CODES

Examiner: Dac V. Ha

Mail Stop Amendment

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT IN RESPONSE TO NON-FINAL OFFICE ACTION

In response to the Office Action dated October 28, 2010, please amend the above-identified U.S. patent application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 7 of this paper.

AMENDMENT TO CLAIMS

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Original) A method of encoding a signal, comprising:
 - receiving a block of data in the signal to be encoded, the block of data including information bits;
 - performing a first encoding operation on at least some of the information bits, the first encoding operation being a linear transform operation that generates L transformed bits; and
 - performing a second encoding operation using the L transformed bits as an input, the second encoding operation including an accumulation operation in which the L transformed bits generated by the first encoding operation are accumulated, said second encoding operation producing at least a portion of a codeword, wherein L is two or more.
2. (Original) The method of claim 1, further comprising:
 - outputting the codeword, wherein the codeword comprises parity bits.
3. (Original) The method of claim 2, wherein outputting the codeword comprises:
 - outputting the parity bits; and
 - outputting at least some of the information bits.
4. (Original) The method of claim 3, wherein outputting the codeword comprises:
 - outputting the parity bits following the information bits.

5. (Original) The method of claim 2, wherein performing the first encoding operation comprises transforming the at least some of the information bits via a low density generator matrix transformation.
6. (Original) The method of claim 5, wherein generating each of the L transformed bits comprises mod-2 or exclusive-OR summing of bits in a subset of the information bits.
7. (Original) The method of claim 6, wherein each of the subsets of the information bits includes a same number of the information bits.
8. (Original) The method of claim 6, wherein at least two of the information bits appear in three subsets of the information bits.
9. (Currently Amended) The method of claim 6, wherein ~~a number of subsets in which the information bits appear~~ in a variable number of subsets ~~is irregular~~.
10. (Original) The method of claim 2, wherein performing the second encoding operation comprises using a first of the parity bits in the accumulation operation to produce a second of the parity bits.
11. (Original) The method of claim 10, wherein outputting the codeword comprises outputting the second of the parity bits immediately following the first of the parity bits.
12. (Original) The method of claim 2, wherein performing the second encoding operation comprises performing one of a mod-2 addition and an exclusive-OR operation.
13. (Currently Amended) A method of encoding a signal, comprising:
receiving a block of data in the signal to be encoded, the block of data including information bits; and

performing an encoding operation using the information bits as an input, the encoding operation including an accumulation of mod-2 or exclusive-OR sums of bits in subsets of the information bits, the encoding operation generating at least a portion of a codeword,

wherein the information bits appear in a variable number of subsets.

14. (Original) The method of claim 13, further comprising:
outputting the codeword, wherein the codeword comprises parity bits.
15. (Original) The method of claim 14, wherein outputting the codeword comprises:
outputting the parity bits; and
outputting at least some of the information bits.
16. (Original) The method of claim 15, wherein the parity bits follow the information bits in the codeword.
17. (Original) The method of claim 13, wherein each of the subsets of the information bits includes a constant number of the information bits.
18. (Currently Amended) A method of encoding a signal, comprising:
receiving a block of data in the signal to be encoded, the block of data including information bits; and
performing an encoding operation using the information bits as an input, the encoding operation including an accumulation of mod-2 or exclusive-OR sums of bits in subsets of the information bits, the encoding operation generating at least a portion of a codeword~~The method of claim 13~~, wherein at least two of the information bits appear in three subsets of the information bits.
19. (Currently Amended) A method of encoding a signal, comprising:
receiving a block of data in the signal to be encoded, the block of data including

information bits; and

performing an encoding operation using the information bits as an input, the encoding operation including an accumulation of mod-2 or exclusive-OR sums of bits in subsets of the information bits, the encoding operation generating at least a portion of a codeword~~The method of claim 13~~, wherein performing the encoding operation comprises:

mod-2 or exclusive-OR adding a first subset of information bits in the collection to yield a first sum;

mod-2 or exclusive-OR adding a second subset of information bits in the collection and the first sum to yield a second sum.

20. (Original) The method of claim 13, wherein performing the encoding operation further comprises:

performing one of the mod-2 addition and the exclusive-OR summing of the bits in the subsets.

21. (Canceled).

22. (Original) A method comprising:

receiving a collection of information bits;

mod-2 or exclusive-OR adding a first subset of information bits in the collection to yield a first parity bit;

mod-2 or exclusive-OR adding a second subset of information bits in the collection and the first parity bit to yield a second parity bit; and

outputting a codeword that includes the first parity bit and the second parity bit.

23. (Currently Amended) The method of claim 22, wherein:

the method further comprises mod-2 or exclusive-OR adding additional subsets of information bits in the collection and parity bits to yield additional parity bits; and

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