

What is claimed is:

CLAIMS

1. A computer-implemented method for embedding copyright information in textual content, the method comprising:

generating, by a computing device, a unique identifier (ID) based on copyright information associated with the textual content, wherein the textual content and the copyright information are recorded on a blockchain of a blockchain network;

adding, by the computing device, one or more function words to the textual content without altering a meaning of the textual content; and

embedding, by the computing device, the unique ID in the function words to produce an information-embedded textual content that enables retrieval of the copyright information from the blockchain based on the unique ID.

2. The computing-implemented method of claim 1, wherein a visual difference between the textual content and the information-embedded textual content is not apparent to an unaided human eye.

3. The computer-implemented method of any one of the preceding claims, further comprising:

before generating the unique ID, authenticating, by the computing device, that a copyright holder holds a copyright of the textual content based on a blockchain transaction ID associated with a transaction that recorded the textual content in the blockchain.

4. The computer-implemented method of any one of the preceding claims, further comprising:

after embedding the unique ID, distributing, by the computing device, the information-embedded textual content to the blockchain network.

5. The computer-implemented method of claim 1, wherein the copyright information associated with the textual content includes one or more of at least a portion of the textual content or identity information of a copyright holder of the textual content.
6. The computer-implemented method of claim 5, wherein the textual content is recorded on the blockchain as a first transaction associated with a first blockchain transaction ID and the identity information is associated with a second transaction associated with a second blockchain transaction ID, and wherein the first blockchain transaction ID or the second blockchain transaction ID is associated with one or more transaction records associated with the textual content.
7. The computer-implemented method of claim 6, wherein the one or more transaction records include one or more of creatorship, copyright ownership, update history, a timestamp, a location, or a license associated with the textual content.
8. The computer-implemented method of any one of the preceding claims, wherein the one or more function words include one or more of articles, prepositions, conjunctions, auxiliaries, or spaces.
9. The computer-implemented method of any one of the preceding claims, further comprising:
digitally signing, by the computing device, the unique ID using a private key assigned to the copyright holder.
10. The computer-implemented method of any one of the preceding claims, wherein the unique ID is generated based on one of hashing the copyright information using a hash function or encrypting the copyright information using a public key assigned to the copyright holder.

11. The computer-implemented method of any one of the preceding claims, wherein the unique ID is further generated based on one or more of a timestamp or an address associated with the copyright information.
12. The computer-implemented method of any one of the preceding claims, wherein the embedding the unique ID is performed based on digital watermarking using one or more of a discrete wavelet transform, a discrete cosine transform, a singular value decomposition, a least significant bit, or undetectable steganography.
13. The computer-implemented method of any one of the preceding claims, wherein the unique ID is embedded in redundant pixels of the one or more function words.
14. A system for embedding copyright information to content, comprising:
 - one or more processors; and
 - one or more computer-readable memories coupled to the one or more processors and having instructions stored thereon which are executable by the one or more processors to perform the method of any one of claims 1-13.
15. An apparatus for embedding copyright information to content, the apparatus comprising a plurality of modules for performing the method of any one of claims 1-13.