(54) **METHOD AND APPARATUS FOR IDENTIFYING NEW MEDIA CONTENT**

VERFAHREN UND VORRICHTUNG ZUM IDENTIFIZIEREN VON NEUEM MEDIA-INHALT

PROCEDE ET APPAREIL D'IDENTIFICATION DU CONTENU DE NOUVEAUX MEDIA

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Description

BACKGROUND

Field of the Disclosure

[0001]   The present disclosure relates to data communications, and, in particular, to a novel system and apparatus for the automatic identification of new media.

The Prior Art

Background

[0002]   Once an audio or video work has been recorded it may be both downloaded by users for play, or broadcast ("streamed") over the Internet or conventional radio or television broadcast or satellite broadcast media. When works are streamed, they may be listened to or viewed by Internet users in a manner much like traditional radio and television stations. Media streams often contain both performances of pre-recorded work and extemporaneous work, such announcements or other narrative material. Furthermore, media streams may contain no information about the work being performed, or the information provided may be imprecise.

[0003]   Given the widespread use of streamed media, audio works, or video works may need to be identified. The need for identification of works may arise in a variety of situations. For example, an artist may wish to verify royalty payments or generate their own Arbitron®-like ratings by identifying how often their works are being performed. Thus, playlists of media may need to be generated. Additionally, for competitive analysis a business may wish to know when and where a competitor is placing advertising in the media. Furthermore, a broadcast source may want to know when and how often a competitive broadcast source is using pre-recorded material.

[0004]   Further complicating the identification are improvements in technology allowing a tremendous number of new works to be produced, such as new song recordings, new advertisements, news worthy audio clips, and station promotions. A comprehensive playlist preferably would include these new works, which may be performed over a wide variety of media streams.

[0005]   Figure 1 shows a playlist generation system 100 of the prior art. The system 100 may include one or more remote detection modules 102 deployed at various locations throughout a broadcast area. Each detection module 102 may include an antenna 104 for receiving broadcast signals and providing the signals to an analysis and lookup module 106. The module 106 is typically configured to identify the content of the received signal by comparing its audio content against a database 108 of reference representations of known works.

[0006]   If a match is made, typically the module 102 will keep a record of all matches made during a predetermined period of time. For example, the module 102 may keep a record of song titles detected during a 24-hour period.

[0007]   The system 100 may further include a playlist server 110 having a processor 112 and database 114. The server 110 is typically configured to receive information such as the titles of identified songs from the one or more detection modules 102 through a network such as the Internet 109 and generate a playlist which may be stored on database 114.

[0008]   However, the system 100 is typically unable to identify works for which a corresponding reference representation does not exist in the reference database.

[0009]   US 5,437,080 discloses a method and apparatus for recognising broadcast information in which the broadcast is converted into a frequency representation which is in turn divided into frequency segments corresponding to semitones.

[0010]   According to the present invention, there is provided a system for identifying works in streamed media and a method for building super segments for identifying works in streamed media, as defined in the appended claims.

SUMMARY

[0011]   In accordance with a first aspect of the present invention, there is a system for identifying audio or video works in streamed media, the system comprising: at least one analysis module configured to receive a media stream from one or more networked sources and to generate corresponding representations of received works included in the media stream; at least one identification server for receiving said representations from said at least one analysis module, identifying works using said representations, and generating a list of unidentifiable received works from segments that the identification server could not identify; characterised in that: the identification server builds super segments from segments by determining whether an unidentified segment is similar to previous unidentified segments and arranging contiguous unidentified segments in a single super segment, and generates the list on the basis of the super segments.

[0012]   In accordance with a second aspect of the present invention, there is a method of building super segments identifying audio or video works in streamed media the method comprising: receiving a segment of a work created from the streamed media; attempting to identify said work using said segment; and if unidentifiable, determining whether said segment is similar to previously received unidentified segments; and, if so, arranging said segment with contiguous unidentified segments into a single super segment, wherein a super segment comprises an ordered arrangement of unidentified segments.

BRIEF DESCRIPTION OF THE DRAWING FIGURES

[0013]

Figure 1 is a prior art diagram of a system.
Figure 2 is a block diagram of one aspect of a disclosed system including one or more analysis modules and ID servers.
Figure 3 is a block diagram of one aspect of an analysis module.
Figure 4 is a flowchart of one aspect of a disclosed system.
Figure 5 is a flowchart of one aspect of a disclosed system.
Figure 6 is a flowchart of a further aspect of a disclosed system.
Figure 7 is a flowchart of yet a further aspect of a disclosed system.

DETAILED DESCRIPTION

[0014]   Persons of ordinary skill in the art will realize that the following description is illustrative only and not in any way limiting. Other modifications and improvements will readily suggest themselves to such skilled persons having the benefit of this disclosure.

[0015]   This disclosure may relate to data communications. Various disclosed aspects may be embodied in various computer and machine-readable data structures. Furthermore, it is contemplated that data structures embodying the teachings of the disclosure may be transmitted across computer and machine-readable media, and through communications systems by use of standard protocols such as those used to enable the Internet and other computer networking standards.

[0016]   The disclosure may relate to machine-readable media on which are stored various aspects of the disclosure. It is contemplated that any media suitable for retrieving instructions is within the scope of the present disclosure. By way of example, such media may take the form of magnetic, optical, or semiconductor media.

[0017]   Various aspects of the disclosure may be described through the use of flowcharts. Often, a single instance of an aspect of the present disclosure may be shown. As is appreciated by those of ordinary skill in the art, however, the protocols, processes, and procedures described herein may be repeated continuously or as often as necessary to satisfy the needs described herein. Accordingly, the representation of various aspects of the present disclosure through the use of flowcharts should not be used to limit the scope of the present disclosure.

Exemplary structure

[0018]   Figure 2 is a schematic diagram of one aspect of a disclosed playlist generation system 200. The system 200 may include at least one analysis module 202 for receiving a media stream from a broadcast source 204 as is known in the art. The analysis module may include one or more conventional antennae 214 coupled to the analysis module 202 through an input port 210. The input port 210 may include a conventional receiver

for the reception of desired broadcast signals. The input port 210 may also be configured to provide remote control functionality for allowing the remote control and configuration of the receiver, such as providing for remote tuning. The input port 210 may be further configured to digitize received signals in digital formats using protocols known in the art, such as PCM.

[0019]   The analysis module 202 may also be configured to receive a media stream from one or more networked sources 206. In one aspect of a disclosed system, the input port 210 of the analysis module 202 may be configured to monitor sources providing content in standard formats such as Real®, QuickTime®, Windows Media®, MP3®, and similar formats, using hardware and software as is known in the art.

[0020]   In another aspect of a disclosed system, the input port 210 may be configured to directly receive audio or video through any of the various means know in the art, such as a microphone, video acquisition system, VHS tape, or audio cassette tape. These media streams may also be provided in standard formats such as MP3, Windows Media, and similar formats. Thus, the analysis module 202 may be configured to receive a work prior to the work being presented to the broadcast system or network source. It is envisioned that this presentation could occur almost simultaneously.

[0021]   The input port 210 may be operatively coupled to a network 208 through which the source 206 may be accessed. The network 208 may comprise any packet- or frame-based network known in the art, such as the Internet. The input port 210 may also be configured to access the network 208 through any means known in the art, such as through traditional copper connections. Furthermore, the input port 210 may also be configured to access the network 208 using wireless connectivity methods as known in the art, including low-power broadband methods such as Bluetooth®, or cellular-based access methods such as those used to provide wireless connectivity to cellular phones and personal digital assistants (PDAs).

[0022]   The analysis module 202 may also include an output port 212 for providing connectivity to the network 208. The output port 212 may comprise a separate unit within the analysis module 202 and may include hardware and software to provide the same functionality as the input port 210. Additionally, it is contemplated that the output port 212 may comprise substantially the same circuitry as the input port 210 in order to save space and cost.

[0023]   Referring now to Figure 3, a conceptual block diagram of one aspect of a disclosed analysis module 202 is shown. The analysis module 202 may include a processor 302 for operating various aspects of the present disclosure. The processor 302 may be operatively disposed between the input port 210 and output port 212.

[0024]   It is contemplated that any processor known in the art may be employed in the module 202, and the

choice of a processor may depend on the application. For example, if the module 202 is embodied in a personal computer, the processor 202 may comprise a microprocessor capable of running conventional operating systems such as Microsoft Windows®, while if the module 202 is deployed in a mobile unit such as a PDA, the processor 202 may need only be capable of running an operating system such as Palm OS®, or other embedded systems such as may be present in a cell phone or other consumer device.

[0025] The module 202 may include ancillary hardware and software, such as conventional memory 304 and a conventional database 306 for the storage and retrieval of various aspects of the disclosed system and data.

[0026] The module 202 may be configured to generate a representation of received work which may then be used by the system to identify performed works contained in the received work. It is contemplated that a wide variety of methods may be used by the analysis module 202 to generate the representation. The analysis module may be configured to generate a representation of the received work using the psychoacoustic properties of the audio content of the received work. Such methods are known in the art. For example, the analysis module may generate feature vectors as disclosed in US Patent #5,918,223 to Blum, et al., which is assigned to the same assignee of the present disclosure and incorporated by reference as though fully set forth herein.

[0027] Additionally, the module 202 may use audio or video spectral or wavelet representation techniques as are known in the art. For example, other representation forms may comprise the text output of a speech recognition system, text output of a close captioned transmission, or a musical score produced by a music transcription system. In another embodiment, the representation may comprise a bit calculated key using any of the techniques as are known in the art such as MD5 hash and CRC.

[0028] The representation may also make note of significant changes in the content of a media signal. Changes in the media stream may also be indicated by a transition from one characteristic set of features to another. By way of example only, such changes may be indicated by a relatively quiet audio section, a change from heavy bass to heavy treble, a blank video frame, or a change in the relative amounts of color in successive segments.

[0029] It is contemplated that a wide variety of analysis methods may be employed singly or in combination advantageously in the present disclosure.

[0030] Referring back to FIG. 2, the system 200 may further include at least one identification (ID) server 220 for identifying a received work. The ID server 220 may identify received work using a representation received from the analysis module 202 through network 208. Though FIG. 2 shows the ID server 220 coupled to the same network 208 as the analysis module 202, it is to be understood that the various components of the present disclosure may be coupled to different networks at different times.

[0031] The ID server 220 may comprise a computer suitable for running an operating system such as Microsoft Windows®, UNIX®, LINUX®, MAC OS®, and the like. The ID server 220 may include a conventional processor 222 for operation of the server. The ID server may further include associated hardware and software known in the art such as a conventional database 224 for storing embodiments of the disclosure or data.

[0032] It is contemplated that the ID server 220 may be configured to identify received work using a variety of methods known in the art. The method for identification may correspond to the method(s) used to generate the representation within the analysis module. For example, the ID server 220 may be configured to perform identification using the methods disclosed in US Patent #5,918,223 to Blum, et al, if the representation were generated using corresponding methods.

[0033] Another example would be the pure spectral representations as are known in the art. It is envisioned that other representations such as wavelets may be used. The invention could also identify the received work from the speech recognized text compared against a database of song lyrics using any of a variety of methods known to those skilled in the art.

[0034] Yet another example would be any of a number of search techniques as are known in the art when the representation is a bit calculated key.

[0035] The system may also identify the received work by searching a collection of musical works for musical note sequences that correspond to the musical score in the representation.

[0036] In another configuration the system may use a combination of identification techniques, each of which correspond to a representation of the received work. By using several identification techniques, the chance of a misidentification or missed identification may be greatly reduced.

[0037] Though the analysis module and ID server are shown as being located separately, it is contemplated that they also may be co-located in a single server. For example, it is contemplated that the analysis module and ID server may each be embodied in a single board computer wherein the analysis module and ID server are housed in a single unit and operatively coupled through a common backplane.

Exemplary operation

[0038] Figure 4 is a flowchart of one aspect of a disclosed method for automatically generating a playlist. The process begins in act 400, where at least one media stream is received by an analysis module. The analysis module may comprise hardware and software substantially as shown and described above.

[0039] Additionally, one or more of the analysis modules may be configured to receive a plurality of stream

sources simultaneously for analysis. It is contemplated that the analysis modules may be located and configured to receive and analyze a wide variety of content, including analog radio or video, digital streaming audio or video, VHS tape, audio cassette tape or any other media.

[0040]   In act 402, the analysis module then creates a representation of the received work as shown and described above. The representation may be created by the analysis module by extracting psychoacoustic properties from the received work as described above.

[0041]   In act 404, the representations created by the one or more analysis modules may be provided to an ID server. The ID server may comprise hardware and software as described above. It is contemplated that the ID server may comprise a single server, multiple servers networked at a single location, or multiple servers located at different locations.

[0042]   It is contemplated that the various analysis modules may provide representations to one or more ID servers in a wide variety of manners. For example, all of the analysis modules present in a system may provide representations in real-time. Or, different analysis modules may be configured to provide representations at different intervals depending on the needs of the end user. The analysis modules may transmit representations every sixty seconds, hourly, or as often as is needed.

[0043]   In some cases where network connectivity is challenging, the representations may be batched up and sent to the ID server(s) once a day or less. In particularly harsh or secretive conditions, the representations may be stored within the analysis modules until the modules could be physically retrieved and operatively coupled to an ID server at another physical location.

[0044]   It is contemplated that an out-of-band event may be used to trigger the transmission of representations. For example, such a trigger may comprise the initialization of a connection to a network, or the activation of media playing software or hardware.

[0045]   Figure 5 is a flowchart of a further disclosed aspect of a disclosed method. The process begins with act 500, where an ID server receives at least one representation of received work. The representations may be received from analysis modules as described above.

[0046]   In act 502, the ID server identifies portions of the received work based upon the representation. This identification may be performed using the methods as described above. The identification may include such information as the song title, artist, label, or any other information as is known in the art that may be associated with the work. The identification information might contain information such as the name of the advertiser or a descriptive notation of an FCC broadcaster identification segment. The identification information might contain a narrative description of a news segment.

[0047]   Once an identification of a received work is made, it is contemplated that a wide variety of further acts maybe performed. For example, the identifications made by the ID server may be used to construct or maintain a playlist database. Such a playlist may be stored on the ID server, or on a distant server. As will be appreciated by those skilled in the art, if representations are provided to the ID server in real-time (or near real-time depending on the equipment or network used), a playlist may be generated in corresponding real-time. Thus, a playlist may be generated in real-time from inputs provided from distant geographic locations or multiple sources that contains a comprehensive playlist of every identified media segment.

[0048]   Additionally, the identification may be transmitted back to the analysis module which generated the representation. This may be advantageous where it is desired to generate a playlist for the particular analysis module's location or user. Thus, the ID server may be configured to provide an identification back to the source analysis module.

[0049]   The identity of the received work may also be used for the maintenance of the system. Typically, copies of received works are stored on local drives for audit purposes. Since the intermediate representation files may be larger in size than the identities, it may be desirable to configure the analysis module to purge intermediate representations for identified works to recover drive space. It is contemplated that the ID server may be configured to transmit the identity of received works back to the generating analysis module, and the corresponding part of the representation may then be deleted from local drives by the analysis module, thereby recovering valuable capacity.

[0050]   Furthermore, it is contemplated that the ID server or analysis module may be configured to send information regarding identified works to third parties, such as third-party servers. Additionally, the ID server or analysis module may be configured to provide an electronic notification to third parties of identifications made by the ID server. Examples of electronic notifications may include email, HTTP POST transactions, or other electronic communication as is known in the art. As is known by those skilled in the art, these electronic notifications may be used to initiate an action based on their content. For example, such notifications may allow the playlist to be accessed in real-time or as desired.

[0051]   It is contemplated that the ID server may be configured to provide customized playlists containing information tailored to a customer's individual needs. For example, a customer may wish to be notified whenever a certain work is broadcast, or whether a particular work is broadcast on a particular media outlet. Customers may wish to have complete playlists provided to them periodically at desired intervals that may include statistics known in the art. By using the system as disclosed herein, such requests may be satisfied automatically in real-time, or at whatever interval may be desired. It is to be understood that any of the aspects of the present disclosure may be performed in real time or as often as desired.

Unidentified segments

[0052] During the process described above, the received work presented to the system may contain segments which may not be identified. In an aspect of a disclosed system, such unidentified segments may be examined to provide useful information. For example, if a particular unidentified segment is repeated often it may contain a new song or commercial or other pre-recorded work that warrants further action.

[0053] In one aspect of a disclosed system, the ID server may examine the representations of unidentified segments, and determine that some sub-segments were actually repeat performances of a single work. Furthermore, this examination may extract a plurality of other characteristics of the original broadcast such as the amount of musical content, amount of speech content, a transcription based on speech recognition, the beat of any music present, etc. These characteristics of the unidentified segments may then be used to classify the unidentified received representations.

[0054] For example, a sub-segment that has been performed more than once may be correlated with a high amount of musical content and a certain minimum length of play time to indicate that a new song has been detected. Correlating other values and characteristics could indicate that a new advertisement has been detected. In some cases a corresponding segment of the original broadcast signal could be retrieved and played for a human to perform an identification.

[0055] Figure 6 is a flow diagram of a method for identifying new media content. The process of FIG. 6 may be performed by any of the structure disclosed in this disclosure.

[0056] The process of FIG. 6 begins in act 600, where a media stream is received. The received media content may be delivered over any transmission medium as disclosed above. The process of FIG. 6 may receive content from one or more media streams. It is contemplated that the received work may comprise representations provided by an analysis module to an ID server as described above. In the discussion that follows, the terms segments and representations may be used interchangeably. Furthermore, when the following discussion discloses operations on a segment, that same operation may be performed on any part of the segment, or a sub segment, where the sub segment may overlap other sub segments.

[0057] In query 602, the system determines whether the received work can be identified. If the work can be identified, the work may be identified in act 604. The determination and identification acts may be performed as disclosed above.

[0058] If the received work cannot be identified, then the unidentified segment may be reported to the system in act 606. It is contemplated that the unidentified segment may be indexed and cataloged. Additionally, a list of unidentified segments may be generated.

[0059] Figure 7 is a flow diagram of a further aspect of identifying new media content. The process of FIG. 7 begins in query 700, where the system waits to receive an unidentified segment.

[0060] In query 702, it is determined whether the received unidentified segment is similar to any part of any previously received unidentified segment. In one embodiment, the analysis performed in query 702 may comprise decomposing each unidentified segment into a series of overlapping 5-second sub segments and comparing each unidentified sub segment against other unidentified sub segments. It is contemplated that a wide variety of similarity measurement techniques may be used, such as those used to identify segments as disclosed above. For example, a threshold for similarity may comprise the vector distance between unidentified segments computed as disclosed above. The choice of similarity measurement may dictate the length of the matching sub segments discovered.

[0061] If the unidentified segment is not determined to be similar to a previously received unidentified segment, then the segment may be indexed and cataloged in act 704. Such a segment may then serve as a reference against which future unidentified segments may be compared.

[0062] If an unidentified segment is determined to be similar to a previously received unidentified segment, the system may conclude that similar unidentified segments may be performances of the same work, e.g., from the same master recording. When the similarity comparison process indicates that the unidentified sub segment is from the same work as another unidentified sub segment, then the system may attempt to extend the length of the similar unidentified segments by 'stitching' together contiguous unidentified sub segments which also meet the criteria of being performances of the same work. These extended segments consisting of similar earlier and later unidentified segments is referred to herein as "super segments".

[0063] Groups of super segments may be created which consist of contiguous runs of unidentified segments collected from one or more media streams that may all be performances of the same work. It is contemplated that super segments may comprise any length, and may preferably have a length corresponding to standard media lengths such as 15 seconds, 30 seconds, 60 seconds, 13 minutes, or even an hour. Of course, other lengths may be used.

[0064] In a further exemplary embodiment, once a super segment has been created, it will be included in the process of FIG. 7. Thus, newly received unidentified segments may be continuously added to a particular super segment if it is determined to be similar to any of the unidentified segments which are contiguous with another super segment in the same group of super segments. This action may extend the length of each super segment in the particular group of super segments. Thus, through the analysis of the present disclosure, a listing may be produced which includes the largest possible repeating

segments across all time and across all the monitored media streams.

[0065]   These repeating segments may contain valuable information and may be reported on. In one embodiment, super segments may be reported on by length. For example, any repeating segments less than 63 seconds in length may represent advertisements, news segments or station promotions. In another embodiment, any repeating segments between 2 and 15 minutes may indicate a song. Additionally, longer repeating segments may indicate an entire broadcast is being repeated, such as a radio talk show or TV show.

[0066]   It is contemplated that the ID server as disclosed herein may perform the process of FIG. 7. Once super segments are found, it is contemplated that a wide variety of further acts maybe performed. For example, the unidentified repeating segments found by the ID server may be used to construct or maintain a new works playlist database. Such a new works playlist may be stored on the ID server, or on a distant server. These repeating segments may be merged into a playlist report of identified media, thus making the playlist comprehensive of all master recordings. As will be appreciated by those skilled in the art, if representations are provided to the ID server in real-time (or near real-time depending on the equipment or network used), a new works playlist may be generated in corresponding real-time. Thus, a new works playlist may be generated in real-time from inputs provided from distant geographic locations or multiple sources that contains a comprehensive playlist of every unidentified media segment or super segment.

[0067]   Often a substantial time interval will pass between performances 'of a work over a given media stream. However, the same work is often performed on several different media streams. The time between performances of the same work on different media streams may be far less than the time between performances of the work on any one media stream. Furthermore, advertisements may often play concurrently over several different media streams as the advertiser tries to achieve great consumer impact. Thus, the system described herein will preferably recognize a new work as soon as it is performed a second time on any monitored media stream.

[0068]   In a further aspect, the unidentified segments and super segments may be transmitted back to the analysis module which generated the representation. This may be advantageous where it is desired to generate a new work playlist for the particular analysis module's location or user. Thus, the ID server may be configured to provide unidentified segments or super segments back to the source analysis module. In this case, the source analysis module may decide to hold the original source audio corresponding to the new work super segment for future identification through more traditional, human based, methods.

[0069]   Furthermore, it is contemplated that the ID server or analysis module may be configured to send infor-mation regarding detected new works to third parties, such as third- party servers. Additionally, the ID server or analysis module may be configured to provide an electronic notification to third parties of new work detection made by the ID server.

[0070]   Examples of electronic notifications may include email, HTTP POST transactions, or other electronic communication as is known in the art. As is known by those skilled in the art, these electronic notifications may be used to initiate an action based on their content. For example, such notifications may allow the new works playlist to be accessed in real-time or as desired. The identification of a new work may be used to raise an alert that a new advertisement, song, or news clip has just been released to media casters.

[0071]   It is contemplated that the ID server may be configured to provide customized new work playlists containing information tailored to a customer's individual needs. For example, a customer may wish to be notified whenever a new work with certain characteristics, as described above, is detected, or whenever a particular type of new work is detected on a particular media outlet. For example, new works reports may be generated which classify super segments based on length. Customers may wish to have complete new work playlists provided to them periodically at desired intervals that may include statistics known in the art. By using the system as disclosed herein, such requests may be satisfied automatically in real-time, or at whatever interval may be desired. It is to be understood that any of the aspects of the present disclosure may be performed in real time or as often as desired.

[0072]   While embodiments and applications have been shown and described, it would be apparent to those skilled in the art that many more modifications and improvements than mentioned above are possible and the invention is defined by the scope of the appended claims.

Claims

1. A system (200) for identifying audio or video works in streamed media, the system comprising:

    at least one analysis module (202) configured to receive a media stream from one or more networked sources (204, 206) and to generate corresponding representations of received works included in the media stream;
    at least one identification server (220) for receiving said representations from said at least one analysis module, identifying works using said representations, and generating a list of unidentifiable received works from segments of works that the identification server could not identify; **characterised in that**:

        the identification server is adepted to build

super segments from segments by determining whether an unidentified segment is similar to previous unidentified segments and arranging contiguous unidentified segments in a single super segment, and to generate the list on the basis of the super segments.

2. The system of claim 1, wherein said at least one analysis module further includes an input port (210) configured to receive said received work from at least one networked source (206).

3. The system of claim 1, where said at least one analysis module further includes an input port (210) configured to receive said received work from at least one broadcast source (204).

4. The system of claim 1, where said at least one analysis module further includes an input port (210) configured to receive said received work in the form of a pre-broadcast digital form.

5. The system of claim 1, wherein said at least one analysis module and said at least one identification server may be coupled over a network (208).

6. The system of claim 5, wherein said network comprises the Internet.

7. The system of claim 1, wherein said corresponding representation comprises a spectral representation of said received work.

8. The system of claim 1, wherein said corresponding representation comprises the text output of a speech recognition system.

9. The system of claim 1, wherein said corresponding representation comprises the musical score output of a music transcription system.

10. The system of claim 1, wherein said corresponding representation comprises a bit calculated key.

11. The system of claim 1, wherein said corresponding representation includes an indication of significance of changes in media signal content embodying a transition from one characteristic set of features in the media stream to another.

12. The system of claim 1 wherein said at least one analysis module is further configured to receive media steams from a plurality of streaming sources for analysis at a single location.

13. The system of claim 1, wherein said at least one analysis module is further configured to receive media streams from one or more sources for analysis at a plurality of different access points of the network.

14. The system of claim 1, wherein said at least one analysis module is configured to provide said representations to said at least one identification server at a predetermined time interval.

15. The system of claim 14, wherein said predetermined time interval comprises at least once a day.

16. The system of claim 14, wherein said predetermined time interval comprises approximately once an hour.

17. The system of claim 14, wherein said at least one analysis module is configured to provide said representations to said at least one identification server in approximately real time.

18. The system of claim 14, wherein said at least one analysis module is configured to provide said representations to said at least one identification server when a predetermined threshold of resource utilization is crossed.

19. The system of claim 14, wherein said at least one analysis module is configured to provide said representations to said at least one identification server based on an out-of-band event.

20. The system of claim 1, wherein said identification server is further configured to generate a playlist of identified works from the set of received stream sources.

21. The system of claim 1, wherein said identification server is further configured to generate a playlist of identified works received from said different access points of the network in approximately real time.

22. The system of claim 1, wherein the single super segment comprises a sequential run of unidentified segments.

23. The system of claim 1, wherein said system is further configured to create groups of super segments comprising repeat performances of the same work, i.e., a master recording.

24. The system of claim 22, wherein said unidentified segments are collected from a plurality of media streams.

25. The system of claim 22, wherein said system is further configured to add a newly received unidentified segment to said super segment if said newly received unidentified segment is determined to be similar to any previously received unidentified seg-

ments.

26. The system of claim 22, wherein said system is further configured to report the contents of said super segments based on the length thereof.

27. The system of claim 26, wherein any repeating segments less than 63 seconds in length are reported as advertisements.

28. The system of claim 26, wherein repeating segments between 2 and 15 minutes are reported as a song.

29. The system of claim 26, wherein repeating segments exceeding 5 seconds are reported as a repeated broadcast.

30. The system of claim 26, wherein repeating segments between 5 and 15 seconds are reported as station identification.

31. The system of claim 29, wherein said repeated broadcast comprises a radio talk show.

32. The system of claim 29, wherein said repeated broadcast comprises a TV show.

33. The system of claim 1, wherein said unidentifiable received works are used to construct a new media playlist database containing a new media playlist.

34. The system of claim 33 wherein said new media playlist is stored on said identification server.

35. The system of claim 33, wherein said new media playlist is stored on a distant server.

36. The system of claim 33, wherein repeating segments are merged into a playlist report of identified media.

37. The system of claim 33, wherein said representations are provided to the identification server in at least near real-time, and said new media playlist is generated in corresponding near real-time.

38. The system of claim 1, further configured to implement a Least Recently Used, LRU, algorithm to remove reference samples from a reference database used by the identification server that have not been identified in a predetermined amount of time.

39. The system of claim 1, further configured to provide an electronic notification to third parties of new media detections made by said system.

40. A method of building super segments identifying audio or video works in streamed media the method comprising:

receiving (600) a segment of a work created from the streamed media;
attempting to identify (602) said work using said segment; and if unidentifiable,
determining (702) whether said segment is similar to previously received unidentified segments; and, if so,
arranging (706) said segment with contiguous unidentified segments into a single super segment, wherein a super segment comprises an ordered arrangement of unidentified segments.

41. The method of claim 40, wherein said act of arranging the contiguous unidentified segments in a single super segment comprises decomposing each said unidentified segment into overlapping segments.

42. The method of claim 41, where the overlapping segments are approximately 5 seconds in length.

43. The method of claim 41, further including the act of adding newly received works to said super segment if said newly received segments are determined to be similar to any of said segments which constitute said super segment.

44. The method of claim 40, further including the act of reporting on the contents of said super segments based on the length thereof.

45. The method of claim 44, wherein a super segment of less than 63 seconds are reported as an advertisement.

46. The method of claim 44, wherein a super segment of less than approximately 63 seconds in length are reported as a news segment.

47. The method of claim 44, wherein a super segment of less than 63 seconds is reported as a station promotion.

48. The method of claim 44, wherein a super segment between approximately 2 and 15 minutes in length is reported as a song.

49. The method of claim 44, wherein a super segment between approximately 5 and 15 seconds is reported as a station identification.

50. The method of claim 44, wherein a super segment longer than approximately 23 minutes in length is reported as an entire broadcast.

51. The method of claim 40 wherein super segments that are repeat performances of the same work, or a master recording, are grouped together.

52. The method of claim 51, wherein said super segments are further reported on based on their length.

Patentansprüche

1. System (200) zum Identifizieren von Audio- oder Video-Arbeiten in gestreamten Medien, wobei das System Folgendes umfasst:

wenigstens ein Analysemodul (202), das zum Empfangen eines Media-Stream von einer oder mehreren vernetzten Quellen (204, 206) und zum Erzeugen von entsprechenden Darstellungen von in dem Media-Stream enthaltenen empfangenen Arbeiten konfiguriert ist;
wenigstens einen Identifikationsserver (220) zum Empfangen der genannten Darstellungen von dem genannten wenigstens einen Analysemodul, zum Identifizieren von Arbeiten anhand der genannten Darstellungen und zum Erzeugen einer Liste von unidentifizierbaren empfangenen Arbeiten von Segmenten von Arbeiten, die der Identifikationsserver nicht identifizieren konnte; **dadurch gekennzeichnet, dass:**

der Identifikationsserver so ausgelegt ist, dass er Super-Segmente von Segmenten dadurch schafft, dass er ermittelt, ob ein unidentifiziertes Segment vorherigen unidentifizierten Segmenten ähnlich ist, und benachbarte unidentifizierte Segmente zu einem einzigen Super-Segment anordnet, und die Liste auf der Basis der Super-Segmente erstellt.

2. System nach Anspruch 1, wobei das genannte wenigstens eine Analysemodul ferner einen Eingangsport (210) aufweist, der zum Empfangen der genannten empfangenen Arbeit von wenigstens einer vernetzten Quelle (206) konfiguriert ist.

3. System nach Anspruch 1, wobei das genannte wenigstens eine Analysemodul ferner einen Eingangsport (210) aufweist, der zum Empfangen der genannten empfangenen Arbeit von wenigstens einer Broadcast-Quelle (204) konfiguriert ist.

4. System nach Anspruch 1, wobei das genannte wenigstens eine Analysemodul ferner einen Eingangsport (210) aufweist, der zum Empfangen der genannten empfangenen Arbeit in einer digitalen Pre-Broadcast-Form konfiguriert ist.

5. System nach Anspruch 1, wobei das genannte wenigstens eine Analysemodul und der genannte wenigstens eine Identifikationsserver über ein Netzwerk (208) gekoppelt werden können.

6. System nach Anspruch 5, wobei das genannte Netzwerk das Internet umfasst.

7. System nach Anspruch 1, wobei die genannte entsprechende Darstellung eine Spektraldarstellung der genannten empfangenen Arbeit umfasst.

8. System nach Anspruch 1, wobei die genannte entsprechende Darstellung die Textausgabe eines Spracherkennungssystems umfasst.

9. System nach Anspruch 1, wobei die genannte entsprechende Darstellung die Partiturausgabe eines Musiktranskriptionssystems umfasst.

10. System nach Anspruch 1, wobei die genannte entsprechende Darstellung einen Bit-berechneten Schlüssel umfasst.

11. System nach Anspruch 1, wobei die genannte entsprechende Darstellung eine Anzeige der Signifikanz von Änderungen des Mediasignalinhalts beinhaltet, der einen Übergang von einem charakteristischen Satz von Merkmalen in dem Media-Stream zu einem anderen ausgestaltet.

12. System nach Anspruch 1, wobei das genannte wenigstens eine Analysemodul ferner zum Empfangen von Media-Streams von mehreren Streamingquellen zur Analyse an einem einzigen Ort konfiguriert ist.

13. System nach Anspruch 1, wobei das genannte wenigstens eine Analysemodul ferner zum Empfangen von Media-Streams von einer oder mehreren Quellen zur Analyse an mehreren unterschiedlichen Zugangspunkten des Netzes konfiguriert ist.

14. System nach Anspruch 1, wobei das genannte wenigstens eine Analysemodul zum Übertragen der genannten Darstellungen zu dem genannten wenigstens einen Identifikationsserver in einem vorbestimmten Zeitintervall konfiguriert ist.

15. System nach Anspruch 14, wobei das genannte vorbestimmte Zeitintervall wenigstens einmal täglich umfasst.

16. System nach Anspruch 14, wobei das genannte vorbestimmte Zeitintervall etwa einmal stündlich umfasst.

17. System nach Anspruch 14, wobei das genannte wenigstens eine Analysemodul zum Übertragen der genannten Darstellungen zu dem genannten wenigstens einen Identifikationsserver etwa in Echtzeit konfiguriert ist.

18. System nach Anspruch 14, wobei das genannte wenigstens eine Analysemodul so konfiguriert ist, dass es die genannten Darstellungen zu dem genannten wenigstens einen Identifikationsserver überträgt, wenn eine vorbestimmte Ressourcennutzungsschwelle überschritten wird.

19. System nach Anspruch 14, wobei das genannte wenigstens eine Analy semodul so konfiguriert ist, dass es die genannten Darstellungen zu dem genannten wenigstens einen Identifikationsserver auf der Basis eines Außer-Band-Ereignisses überträgt.

20. System nach Anspruch 1, wobei der genannte Identifikationsserver ferner zum Erzeugen einer Playlist von identifizierten Arbeiten aus dem Satz von empfangenen Streamquellen konfiguriert ist.

21. System nach Anspruch 1, wobei der genannte Identifikationsserver ferner zum Erzeugen einer Playlist von identifizierten Arbeiten konfiguriert ist, die von den genannten verschiedenen Zugangspunkten des Netzwerks etwa in Echtzeit empfangen werden.

22. System nach Anspruch 1, wobei das einzige Super-Segment eine sequentielle Folge von unidentitizierten Segmenten umfasst.

23. System nach Anspruch 1, wobei das genannte System ferner zum Erzeugen von Gruppen von Super-Segmenten konfiguriert ist, die Wiederholungen derselben Arbeit umfassen, d.h. eine Master-Aufnahme.

24. System nach Anspruch 22, wobei die genannten unidentifizierten Segmente von mehreren Media-Streams gesammelt werden.

25. System nach Anspruch 22, wobei das genannte System ferner zum Hinzufügen eines neu empfangenen unidentifizierten Segments zu dem genannten Super-Segment konfiguriert ist, wenn festgestellt wird, dass das genannte neu empfangene unidentifrzierte Segment zuvor empfangenen und unidentifizierten Segmenten ähnlich ist.

26. System nach Anspruch 22, wobei das genannte System ferner zum Melden der Inhalte der genannten Super-Segmente auf der Basis von deren Länge konfiguriert ist.

27. System nach Anspruch 26, wobei Wiederholungssegmente von weniger als 63 Sekunden Länge als Werbung gemeldet werden.

28. System nach Anspruch 26, wobei Wiederholungssegmente zwischen 2 und 15 Minuten als Lied gemeldet werden.

29. System nach Anspruch 26, wobei Wiederholungssegmente von mehr als 5 Sekunden als wiederholtes Broadcast gemeldet werden.

30. System nach Anspruch 26, wobei Wiederholungssegmente zwischen 5 und 15 Sekunden als Senderkennung gemeldet werden.

31. System nach Anspruch 29, wobei das genannte wiederholte Broadcast eine Radio-Talkshow beinhaltet.

32. System nach Anspruch 29, wobei das genannte wiederholte Broadcast eine Fernsehshow beinhaltet.

33. System nach Anspruch 1, wobei die genannten unidentifizierbaren empfangenen Arbeiten zum Konstruieren einer neuen Media-Playlist-Datenbank verwendet werden, die eine neue Media-Playlist enthält.

34. System nach Anspruch 33, wobei die genannte neue Media-Playlist auf dem genannten Identifikationsserver gespeichert ist,

35. System nach Anspruch 33, wobei die genannte neue Media-Playlist auf einem fernen Server gespeichert wird.

36. System nach Anspruch 33, wobei Wiederholungssegmente zu einem Playlist-Report von identifizierten Media zusammengeführt werden.

37. System nach Anspruch 33, wobei die genannten Darstellungen zu dem Identifikationsserver wenigstens in Nahe-Echtzeit übertragen werden und die genannte neue Media-Playlist in einer entsprechenden Nahe-Echtzeit erzeugt wird.

38. System nach Anspruch 1, das ferner zum Implementieren eines LRU-(Least Recently Used)-Algorithmus zum Entfernen von Referenz-Samples aus einer vom Identifikationsserver benutzten Referenzdatenbank konfiguriert ist, die nicht in einer vorbestimmten Zeitdauer identifiziert wurden.

39. System nach Anspruch 1, das ferner zum Übertragen einer elektronischen Benachrichtigung zu Drittparteien über neue Medienerkennungen konfiguriert ist, die von dem genannten System gemacht werden.

40. Verfahren zum Aufbauen von Super-Segmenten, die Audio- oder Video-Arbeiten in gestreamten Media identifizieren, wobei das Verfahren Folgendes beinhaltet:

    Empfangen (600) eines Segments einer von den gestreamten Media erzeugten Arbeit;

Versuchen, die genannte Arbeit mit dem genannten Segment zu identifizieren (602); und wenn sie nicht identifizierbar ist,

Ermitteln (702), ob das genannte Segment zuvor empfangenen unidentifizierten Segmenten ähnlich ist; und wenn ja,

Anordnen (706) des genannten Segments mit benachbarten unidentifizierten Segmenten zu einem einzigen Super-Segment, wobei ein Super-Segment eine geordnete Anordnung von unidentifizierten Segmenten umfasst.

41. Verfahren nach Anspruch 40, wobei die genannte Tätigkeit des Anordnens der benachbarten unidentifizierten Segmente zu einem einzelnen Super-Segment das Zerlegen jedes genannten unidentifizierten Segments in überlappende Segmente beinhaltet.

42. Verfahren nach Anspruch 41, wobei die überlappenden Segmente eine Länge von etwa 5 sekunden haben.

43. Verfahren nach Anspruch 41, das ferner die Tätigkeit des Hinzufügens von neu empfangenen Arbeiten zu dem genannten Super-Segment beinhaltet, wenn festgestellt wird, dass die genannten neu empfangenen Segmente beliebigen der genannten Segmente ähnlich sind, die das genannte Super-Segment bilden.

44. Verfahren nach Anspruch 40, das ferner die Tätigkeit des Meldens des Inhalts der genannten Super-Segmente auf der Basis von deren Länge beinhaltet.

45. Verfahren nach Anspruch 44, wobei ein Super-Segment von weniger als 63 Sekunden als Werbung gemeldet wird.

46. Verfahren nach Anspruch 44, wobei ein Super-Segment von weniger als etwa 63 Sekunden Länge als Nachrichtensegment gemeldet wird.

47. Verfahren nach Anspruch 44, wobei ein Super-Segment von weniger als 63 Sekunden als Senderpromotion gemeldet wird.

48. Verfahren nach Anspruch 44, wobei ein Super-Segment mit einer Länge zwischen etwa 2 und 15 Minuten als Lied gemeldet wird.

49. Verfahren nach Anspruch 44, wobei ein Super-Segment zwischen etwa 5 und 15 Sekunden als Senderkennung gemeldet wird.

50. Verfahren nach Anspruch 44, wobei ein Super-Segment mit einer Länge von mehr als etwa 23 Minuten als gesamtes Broadcast gemeldet wird.

51. Verfahren nach Anspruch 40, wobei Super-Segmente, die Wiederholungen derselben Arbeit sind, oder eine Master-Aufzeichnung, zusammen gruppiert werden.

52. Verfahren nach Anspruch 51, wobei die genannte Super-Segmente ferner auf der Basis ihrer Länge gemeldet werden.

Revendications

1. Un système (200) d'identification d'oeuvres audio ou vidéo dans un support multimédia en diffusion continu, le système comprenait :

   au moins un module d'analyse (202) configuré de façon à recevoir un flux multimédia provenait d'une ou plusieurs sources en réseau (204, 206) et de façon à générer une représentation correspondante des oeuvres reçues incluses dans le flux multimédia,
   au moins un serveur d'identification (220) destiné à recevoir lesdites représentations dudit au moins un module d'analyse, à identifier des oeuvres au moyen desdites représentation et à générer une liste d'oeuvres reçues non identifiables à partir de segments d'oeuvres que le serveur d'identification n'a pas pu identifier, **caractérisé en ce que** :

   le serveur d'identification est adapté de façon à construira des super-segments à partir de segments en déterminant si un segment non identifié est similaire à des segments non identifiés intérieurs. et en agençant des segments non identifiés contigus en un super-segment unique, et de façon à générer la liste en fonction des super-segments.

2. Le système selon la Revendication 1. où ledit au moins un module d'analyse comprend en outre un port d'entrée (210) configure de façon à recevoir ladite oeuvre reçue à partir d'au moins une ressource en réseau (206).

3. Le système selon la Revendication 1, où ledit au moins un module d'analyse comprend en outre un port d'entrée (210) configuré de façon à recevoir ladite oeuvre reçue à partir d'au moins un sources de radiodiffusion (204).

4. Le système selon la Revendication 1, où ledit au moins un module d'analyse comprend en outre un port d'entrée (210) configuré de façon à recevoir ladite oeuvre reçue sous la forme d'une forme numérique pré-radiodiffusée.

5. Le système selon la Revendication 1, où ledit au moins un module d'analyse et ledit au moins un serveur d'identification peuvent être couplés par l'intermédiaire d'un réseau (208).

6. Le système selon la Revendication 5, où ledit réseau comprend l'Internet.

7. Le système selon la Revendication 1, où ladite représentation correspondante comprend une représentation spectrale de ladite oeuvre reçue.

8. Le système selon la Revendication 1, où ladite représentation correspondante comprend la sortie textuelle d'un système de reconnaissante vocale.

9. Le système selon la Revendication 1, où ladite représentation correspondante comprend la sortie de partition musicale d'un système de transcription de musique.

10. Le système selon la Revendication 1, où ladite représentation correspondante comprend une clé à calcul binaire.

11. Le système selon la Revendication 1, où ladite représentation correspondante contient une indication de l'importance de modifications dans le contenu de signal multimédia indiquant une transition d'un ensemble caractéristique de caractéristiques dans le flux multimédia vers un autre.

12. Le système selon la Revendication 1, où ledit au moins une module d'analyse est configuré en outre de façon à recevoir des flux multimédias d'une pluralité de sources en diffusion continue à des fins d'analyse en un emplacement unique.

13. Le système selon la Revendication 1, où ledit au moins un module d'analyse est configuré en outre de façon à recevoir des flux multimédias à partir d'une ou plusieurs sources à des fins d'analyse sur une pluralité de points d'accès différents du réseau.

14. Le système selon la Revendication 1, où ledit au moins un module d'analyse est configuré de façon à fournir lesdites représentations audit au moins un serveur d'identification à un intervalle de temps prédéterminé.

15. Le système selon la Revendication 14, où ledit intervalle de temps prédéterminé comprend au moins une fois par jour.

16. Le système selon la Revendication 14, où ledit intervalle de temps prédéterminé comprend approximativement une fois par heure.

17. Le système selon la Revendication 14, où ledit au moins un module d'analyse est configuré de façon a fournir lesdites représentations audit au moins un serveur d'identification en approximativement temps réel.

18. Le système selon la Revendication 14, où ledit au moins un module d'analyse est configure de façon à fournir lesdites représentations audit au moins un serveur d'identification lorsqu'un seuil prédéterminé d'utilisation de ressources est franchi.

19. Le système selon la Revendication 14, où ledit au moins un module d'analyse est configure de façon à fournir lesdites représentations audit au moins un serveur d'identification en fonction d'un événement hors bande.

20. Le système selon la Revendication 1, où ledit serveur d'identification est configuré en outre de façon à générer une liste de diffusion d'oeuvres identifiées à partir de l'ensemble de sources en diffusion continue reçues.

21. Le système selon la Revendication 1, où ledit serveur d'identification est configuré en outre de façon à générer une liste de diffusion d'oeuvres identifiées reçues à partir desdits points d'accès différents du réseau en approximativement temps réel.

22. Le système selon la Revendication 1, où le super-segment unique comprend une série séquentielle de segments non identifiés.

23. Le système selon la Revendication 1, où ledit système est configuré en outre de façon à créer des groupes de super-segments comprenant des exécutions répétées de la même oeuvre, c'est-à-dire un enregistrement maître.

24. Le système selon la Revendication 22, où lesdits segments non identifiés sont recueillis à partir d'une pluralité de flux multimédias.

25. Le système selon la Revendication 22, où ledit système est configuré en outre de façon à ajouter un segments non identifié nouvellement reçu audit super-segment si ledit segment non identifié nouvellement reçu est détermine comme étant similaire à l'un quelconque des segments non identifiés reçus antérieurement.

26. Le système selon la Revendication 22, où ledit système est configuré en outre de façon à signaler les contenus desdits super-segments en fonction de leur longueur.

27. Le système selon la Revendication 26, où tous les

segments répétitifs inférieurs à 63 secondes sont signalés comme étant des messages publicitaires.

28. Le système selon la Revendication 26, où des segments répétitifs entre 2 et 15 minutes sont signalés comme étant une chanson.

29. Le système selon la Revendication 26, où des segments répétitifs dépassant 5 secondes sont signalés comme étant une émission répétée.

30. Le système selon la Revendication 26, où des segments répétitifs entre 5 et 15 secondes sont signalés comme étant une identification de station.

31. Le système selon la Revendication 29, où ladite émission répétée comprend une émission de débat radiophonique.

32. Le système selon la Revendication 29, où ladite émission répétée comprend une émission de télévision.

33. Le système selon la Revendication 1, où lesdites oeuvres reçues non identifiables sont utilisées pour construire une base de données de liste de diffusion de nouveaux supports multimédias contentant une liste de diffusion de nouveaux supports multimédias.

34. Le système selon la Revendication 33 où ladite liste de diffusion de nouveaux supports multimédias est conservée en mémoire dans ledit serveur d'identification.

35. Le système selon la Revendication 33, où ladite liste de diffusion de nouveaux supports multimédias est conservée en mémoire dans un serveur distant.

36. Le système selon la Revendication 33, où des segments répétitifs sont fusionnés en un rapport de liste de diffusion de supports multimédias identifiés.

37. Le système selon la Revendication 33, où lesdites représentations sont fournies au serveur d'identification en au moins quasi temps réel, et ladite liste de diffusion de nouveaux supports multimédias est générée en quasi temps réel correspondant.

38. Le système selon la Revendication 1, configuré en outre de façon à mettre en oeuvre un algorithme d'ancienneté, LRU, destiné à retirer des échantillons de référence d'une base de données de référence utilisée par le serveur d'identification qui n'ont pas été identifiés dans un délai prédéterminé.

39. Le système selon la Revendication 1, configuré en outre de façon à fournir une notification électronique à des parties tierces de détections de nouveaux sup-

ports multimédias effectuées par ledit système.

40. Un procédé de construction de super-segments identifiant des oeuvres audio ou vidéo dans des supports multimédias en diffusion continue, le procédé comprenant :

la déception (600) d'un segment d'une oeuvre créée à partir des supports multimédias en diffusion continue,
la tentative d'identifier (602) ladite oeuvre au moyen dudit segment, et si elle n'est pas identifiable,
la détermination (702) si ledit segment est similaire des segments non identifiés reçus intérieurement, et si c'est le cas,
l'agencement (706) dudit segment avec des segments non identifiés contigus en un super-segment unique, où un super-segment comprend un agencement ordonné de segments non identifiés.

41. Le procédé selon la Revendication 40, où ladite opération d'agencement de segments non identifiés contigus en un super-segment unique comprend la décomposition de chacun desdits segments non identifiés en segments se chevauchant.

42. Le procédé selon la Revendication 41, où les segments se chevauchant sont d'une longueur d'approximativement 5 secondes.

43. Le procédé selon la Revendication 41, comprenant en outre l'opération d'ajout d'oeuvres nouvellement reçues audit super-segment si lesdits segments nouvellement reçus sont déterminés être similaires à l'un quelconque desdits segments qui constituent ledit super-segment.

44. Le procédé selon la Revendication 40, comprenant en outre l'opération de signalement des contenus desdits super-segments en fonction de leur longueur.

45. Le procédé selon la Revendication 44 où un super-segment de moins de 63 secondes est signalé comme étant une message publicitaire.

46. Le procédé selon la Revendication 44, où un super-segment de moins d'approximativement 63 secondes est signalé comme étant un segment d'actualités.

47. Le procédé selon la Revendication 44, où un super-segment de moins de 63 secondes est signalé comme étant une promotion de station.

48. Le procédé selon la Revendication 44, où un super-

segment entre approximativement 2 et 15 minutes est signalé comme étant une chanson.

49. Le procédé selon la Revendication 44, où un super-segment entre approximativement 5 et 15 secondes est signalé comme étant une identification de station.

50. Le procédé selon la Revendication 44, où un super-segment de plus d'approximativement 23 minutes est signalé comme étant une émission complète.

51. Le procédé selon la Revendication 40, où des super-segments qui sont des exécutions répétées de la même oeuvre, ou un enregistrement maître, sont regroupés.

52. Le procédé selon la Revendication 51, où lesdits super-segments sont signalés en outre en fonction de leur longueur.

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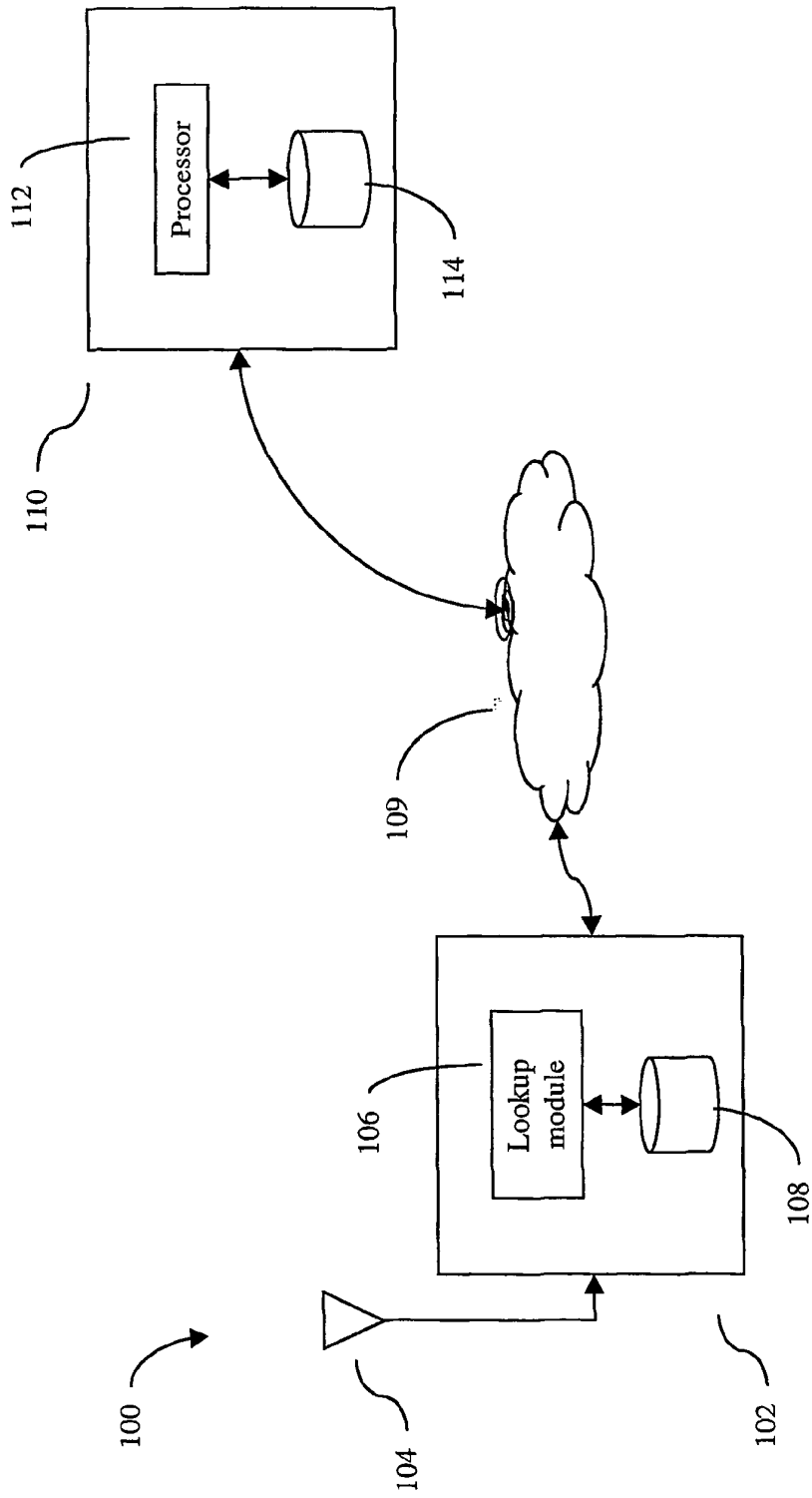
FIG. 1
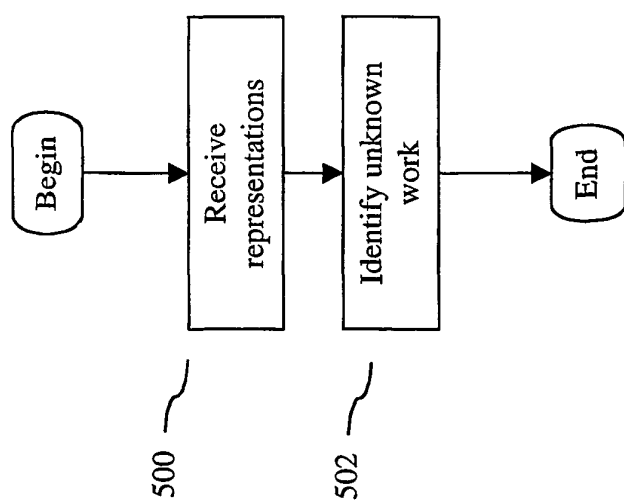Prior Art
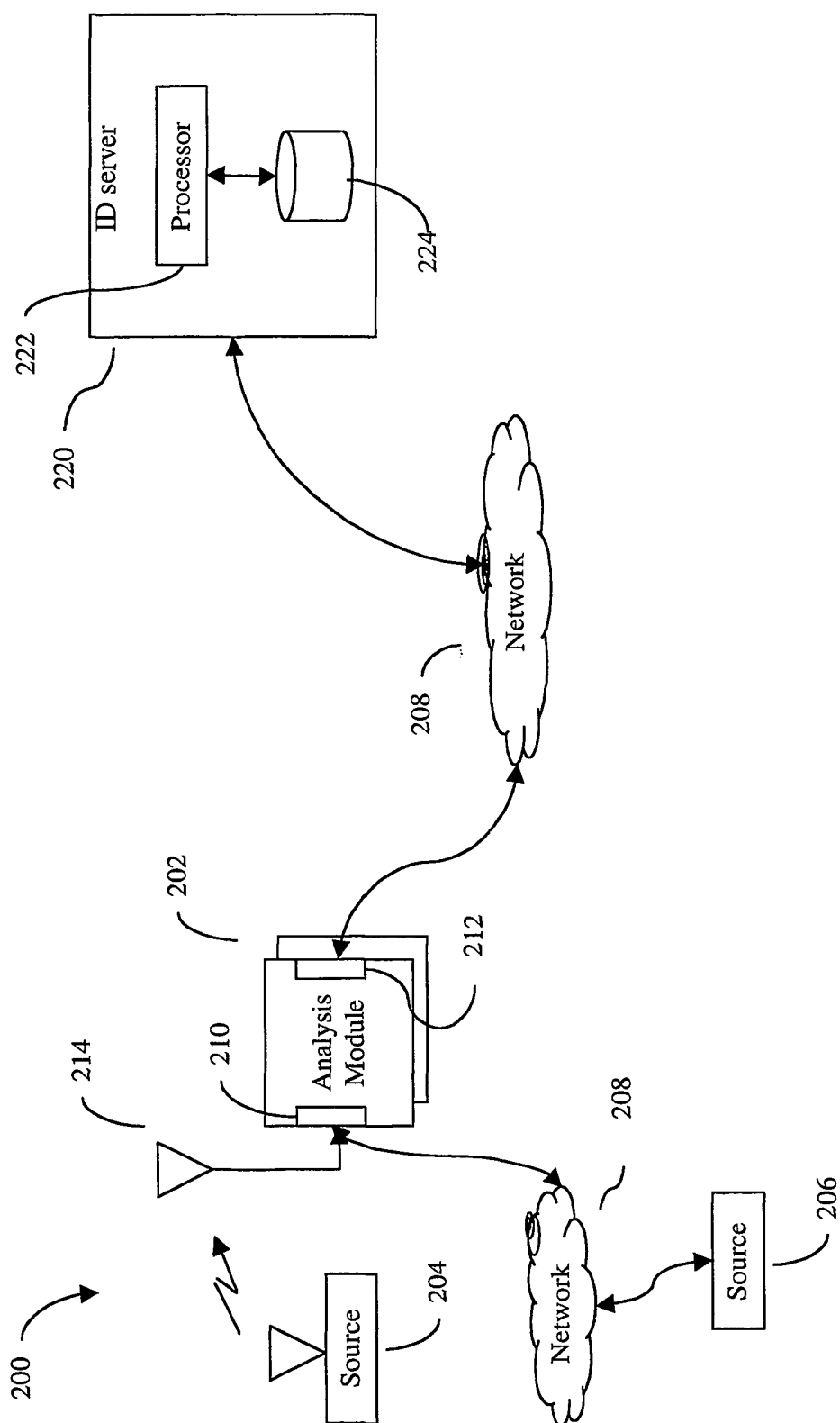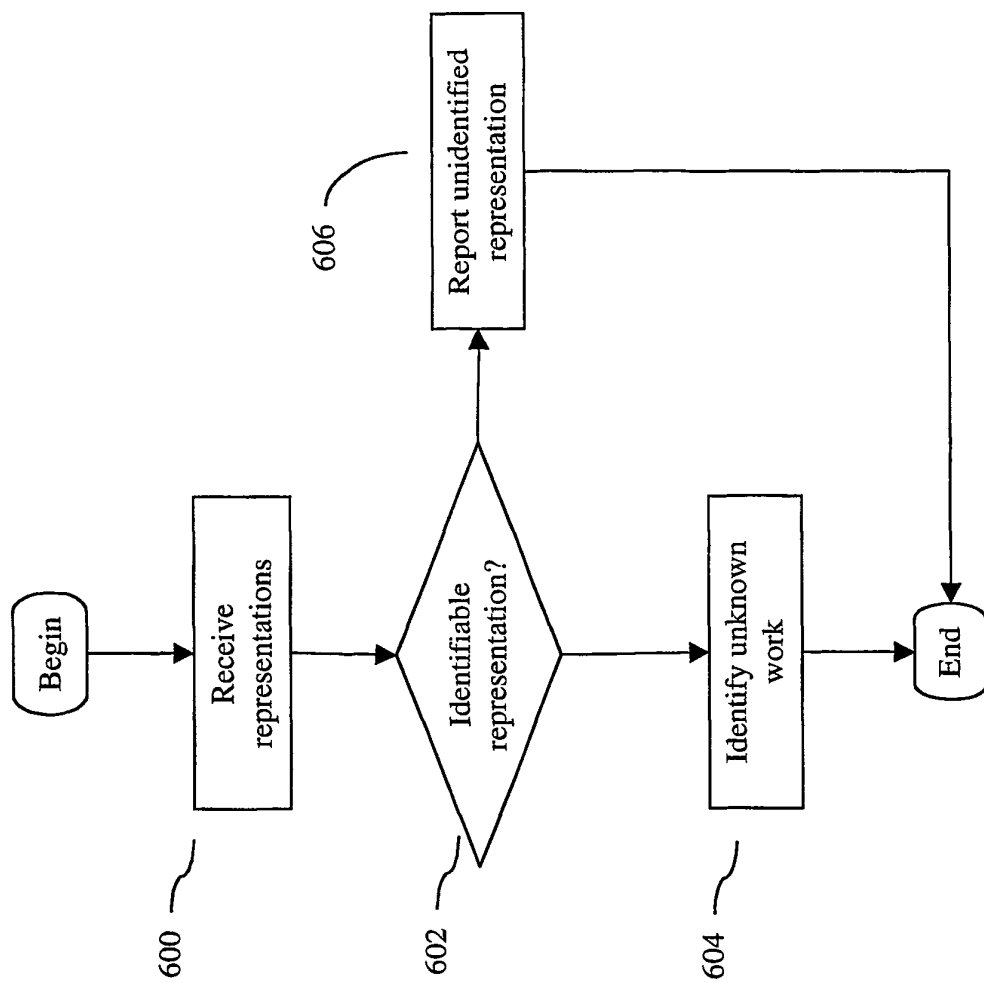
FIG. 2
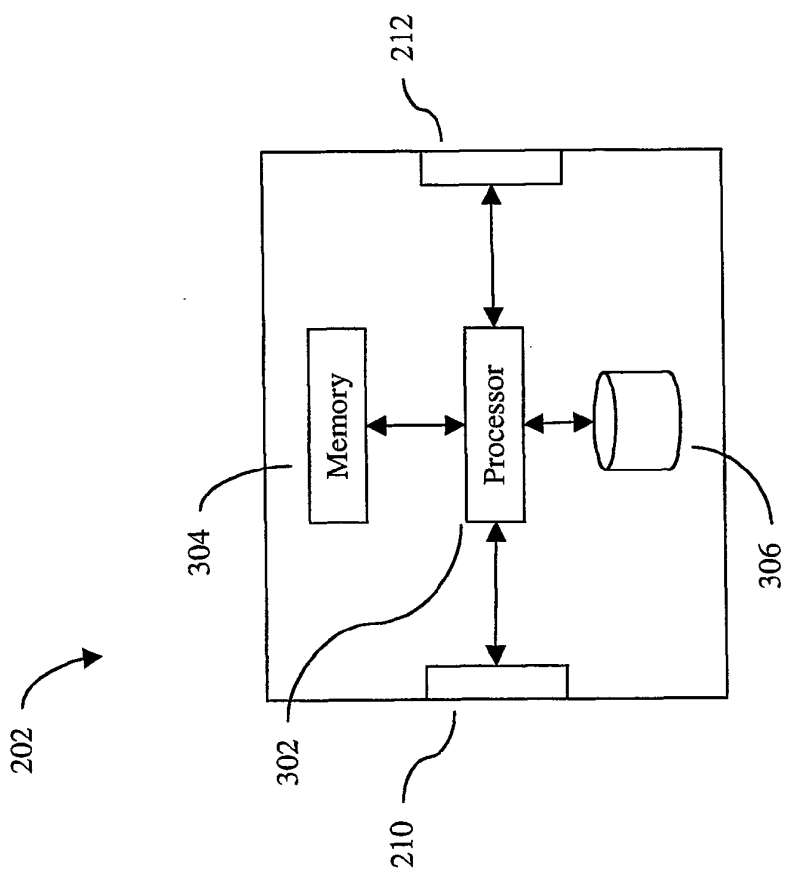
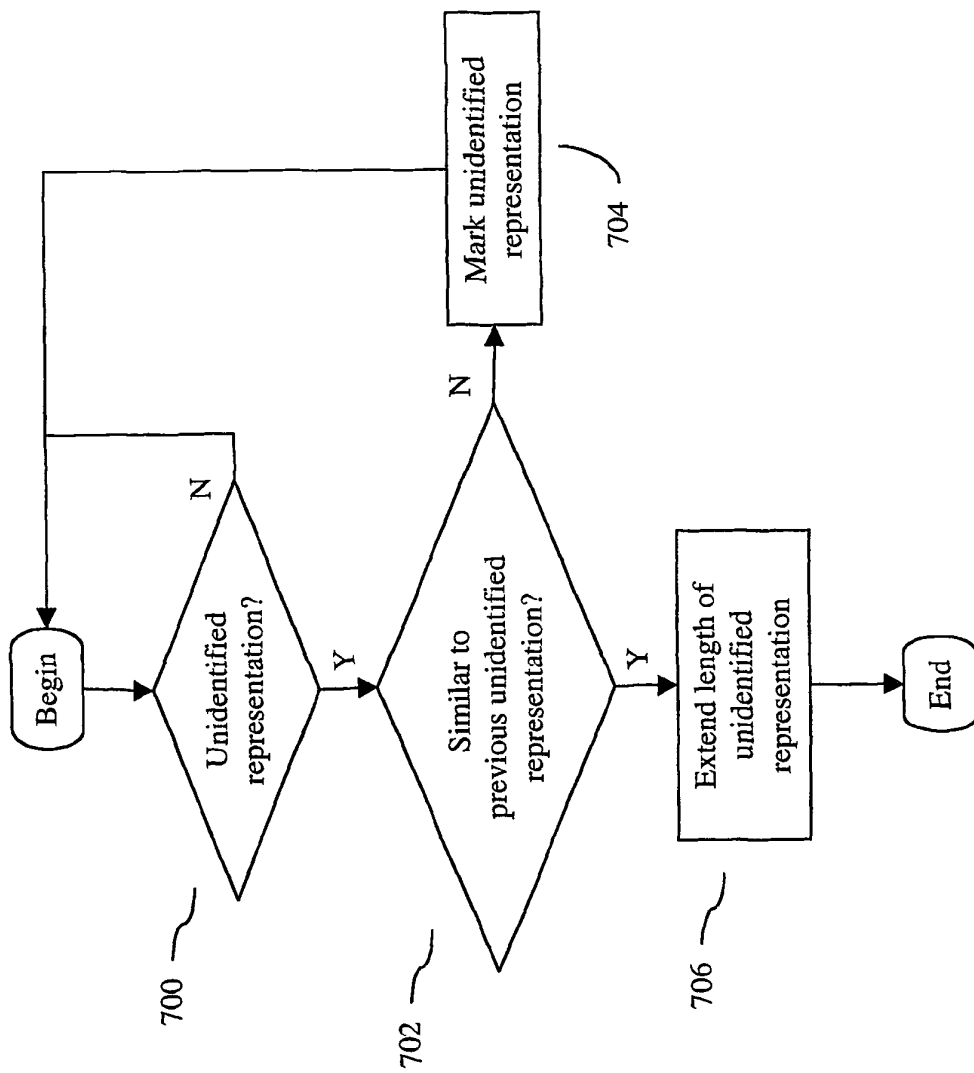FIG. 3

FIG. 4

FIG. 5

FIG. 6

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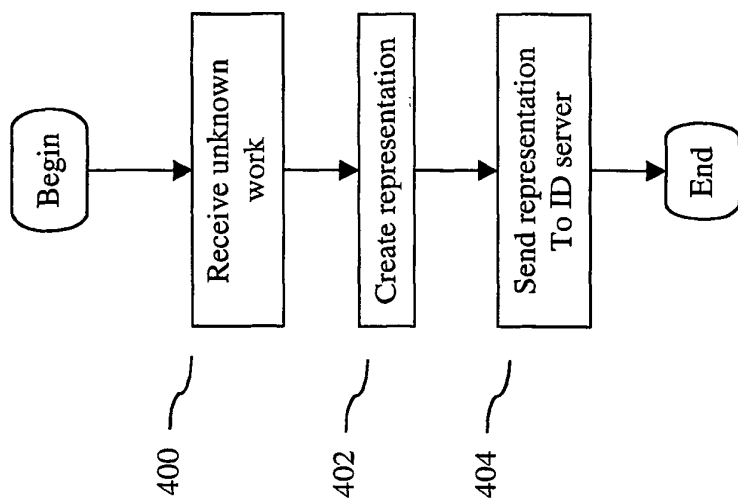
FIG. 7

REFERENCES CITED IN THE DESCRIPTION

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