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User-controlled Selective Metadata Removal Prior to Content Sharing

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ABSTRACT

Image and video files include embedded metadata with information such as date and time of capture, location, camera type and settings, etc. When sharing such content with other users, e.g., via messaging, social media, etc. users sometimes prefer to remove some or all of the metadata. Current mechanisms for metadata removal are cumbersome and coarse, e.g., do not provide fine control to remove certain metadata while retaining other metadata. This disclosure describes flexible and seamless mechanisms for users to share content with others, with selective inclusion of metadata. The techniques provide a user interface that enables the user to choose the metadata to be included, to apply the selected setting to multiple content items, save default settings for various applications, etc. The techniques retain the benefits of the application or service features that use content metadata when the user is viewing or interacting with their own content.

KEYWORDS

- Metadata removal
- Metadata masking
- Metadata stripping
- Image metadata
- EXIF
- Photo sharing
- User privacy
- Photo upload

BACKGROUND

      Image files of photos taken with digital cameras (including smartphones and other mobile devices) contain embedded metadata that provides a variety of relevant pieces of information, such as camera settings, image properties, date, time, location, thumbnail, copyright, etc. Such metadata is usually structured and stored in a format confirming to the Exchangeable Image File Format (EXIF) standard. The metadata is not required for viewing the contents of the photo. However, applications often use the metadata in photo files for providing additional functionality. For instance, a photo uploaded to a social media service can be automatically placed on a map based on the location where the photo was taken as indicated in the embedded location metadata.

      Users often share photos with others either directly (e.g., in a direct message or email) or indirectly via a shared service, such as social media, online photo albums, etc. Anyone who can access the shared photo can also access the metadata embedded within the photo file. Since the metadata can include information that users may not wish to share, users may want photos shared with others to not include some or all of the embedded metadata. However, current photo sharing services do not provide users with the ability to remove metadata from versions of photos that are shared with others.

      Some photo sharing services provide users with the ability to disable the upload of metadata embedded in the original photo files. In such cases, all embedded metadata is removed from the copy of the file that is uploaded and stored on the platform. However, such a feature is typically implemented at a global level for all photos and all metadata. As a result, users are currently unable to remove metadata from photos uploaded to photo sharing services on a per-photo basis, nor can they specify removal of specific metadata while retaining other information.

DESCRIPTION

This disclosure describes mechanisms for users to share photos with others while omitting certain metadata. When sharing photos with others, users can choose to share them as usual (with metadata) or excluding certain metadata. Users can invoke the functionality to share a photo without its metadata via any suitable user interface (UI) mechanism, such as a button, setting, etc. When a user invokes the functionality to share a photo without the associated metadata, a copy of the photo to be shared is created. Metadata is removed from the copy of the photo prior to sharing it with other parties.
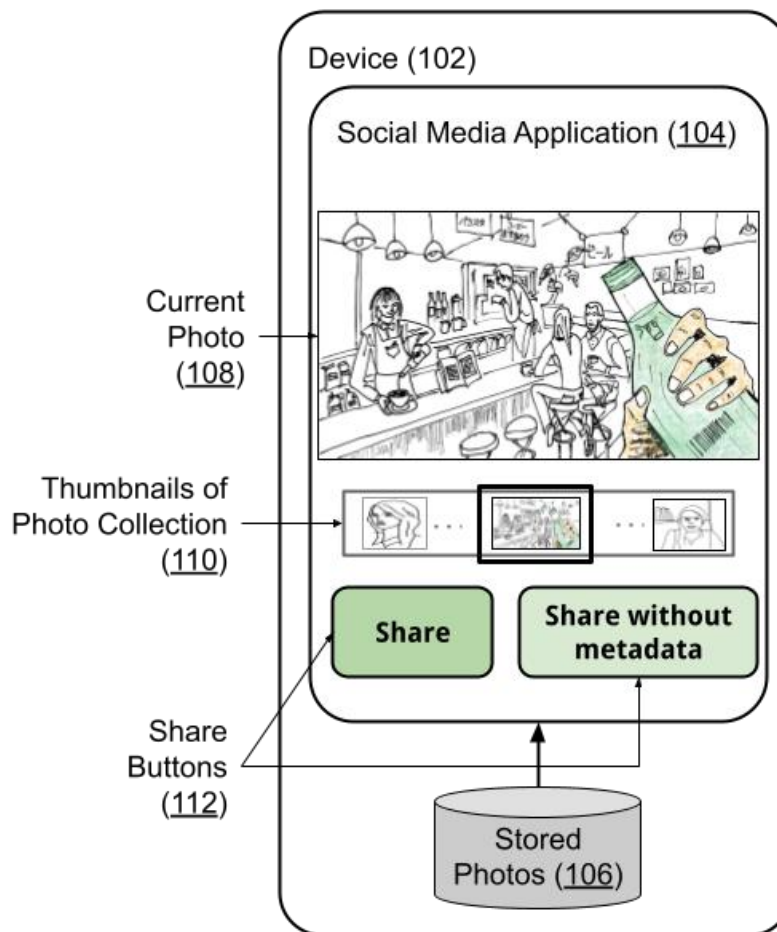

Fig. 1: Removal of metadata prior to sharing photos with other parties

Fig. 1 shows an operational implementation of the techniques described in this disclosure. A user uploads photos (106) stored on a device (102) to a social media service using the corresponding application (104). When interacting with a given photo (108) within an uploaded photo collection (110) via the social media application, the user can choose to share the photo with other parties without sharing the associated metadata by pressing the sharing button (112) with the label "share without metadata." As described earlier, pressing the button to share without metadata shares a copy of the photo without the metadata with the desired other parties. Alternatively, the user can choose the sharing button with the label "share" to share the photo with the metadata included.

The techniques can be implemented such that users can choose to share photos without metadata individually for a given photo, globally for all photos, or collectively for several photos, such as photos within an album, photos taken at a given event, photos taken on a given data, etc. Similarly, users can be provided options to choose to omit specific pieces of metadata from the shared version of the photo, rather than removing all metadata. For instance, a user can choose to share photos without location metadata while retaining other metadata, such as the date on which the photo was taken.

In addition, the techniques described herein can be implemented to provide users with the flexibility to specify whether every photo uploaded and shared via specific apps or services is to be transmitted without the associated metadata. Such an operation can make it possible for users to avoid sharing metadata for photos with untrusted or less trusted parties while retaining the original photo with the metadata on their devices and/or within the platforms of trusted services.

With user permission, the techniques can be implemented within any application, service, or platform with functionality for capturing, storing, organizing, browsing, or sharing photos.

The photos can be taken with any device such as a standalone digital camera, a camera built into a smartphone, a webcam attached to a computer, etc.

Implementation of the described techniques can enable users to share photos with other parties or with the public without sharing potentially sensitive metadata while retaining the benefits of application or service features that are based on the use of metadata when viewing or interacting with the photos on their own. The techniques provide a seamless and efficient way to share photos without the associated metadata, thus providing a more effective user experience (UX) for photo sharing with other parties. While the foregoing description refers to photos, the techniques can also support selective removal of metadata from videos or other user-created content.

Further to the descriptions above, a user may be provided with controls allowing the user to make an election as to both if and when systems, programs or features described herein may enable collection of user information (e.g., information about a user's photos or videos, social network, social actions or activities, profession, a user's preferences, or a user's current location), and if the user is sent content or communications from a server. In addition, certain data may be treated in one or more ways before it is stored or used, so that personally identifiable information is removed. For example, a user's identity may be treated so that no personally identifiable information can be determined for the user, or a user's geographic location may be generalized where location information is obtained (such as to a city, ZIP code, or state level), so that a particular location of a user cannot be determined. Thus, the user may have control over what information is collected about the user, how that information is used, and what information is provided to the user.

CONCLUSION

      This disclosure describes flexible and seamless mechanisms for users to share content with others, with selective inclusion of metadata. The techniques provide a user interface that enables the user to choose the metadata to be included, to apply the selected setting to multiple content items, save default settings for various applications, etc. The techniques retain the benefits of the application or service features that use content metadata when the user is viewing or interacting with their own content.