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## Semi-automated User Account Profile Generation Using Existing Social Media Data

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## **Semi-automated User Account Profile Generation Using Existing Social Media Data**

### **ABSTRACT**

Online interactive services provide the ability for users to create profiles that specify their preferences and/or interests and showcase their photos. It is burdensome and time-consuming for users to provide manual input of the various pieces of information included in such profiles and to keep the profile updated over time. This disclosure describes techniques for automating the generation of a user profile for an online service. With user permission, a preview of the proposed user profile for a new service is generated automatically based on information about the user aggregated from the user's other accounts. Data from the other accounts is aggregated and analyzed to determine the user's interests and other relevant information needed for filling out the profile. The inferred interests and preferences are ranked and specific data are selected to be added to the profile, e.g., based on the likely appeal of that information for the audience on the new service. Once confirmed by the user, the information is posted to the user's profile for the given online service.

### **KEYWORDS**

- Online profile
- Social media profile
- Dating profile
- User interests
- User account
- Entity recognition
- Profile attributes
- Photo appeal

## BACKGROUND

A number of online interactive services, such as social media, dating apps, etc., provide the ability for users to create profiles that specify their preferences and/or interests and showcase their photos. It is burdensome and time-consuming for users to provide manual input of the various pieces of information included in such profiles and to keep the profile updated over time. For instance, users may find it difficult to select a suitable profile photo to represent themselves. Similarly, the accuracy of the user-specified interests in the profile can degrade over time as the user's interests evolve with changing tastes and accumulated life experiences. Moreover, since the information in the profile is manually provided, users may not be certain that their profile is a reasonably faithful representation of themselves.

To address these challenges, some services implement Question and Answer (Q&A) functionality to solicit profile-relevant input from their users by asking specific questions that cover various attributes of interest. Moreover, with user permission, services such as dating apps can use the attributes gathered from the answers of the users to generate dating matches. However, the approach still requires manual information input and does not necessarily lead to more accurate profiles or better identification of suitable dating matches.

## DESCRIPTION

This disclosure describes techniques for automating the generation of a user profile for an online service. The profile for the user is generated automatically based on the information about the user aggregated from the user's social media accounts, each account accessed with specific user permission and in compliance with user settings and policies of the social media provider.

The aggregated social media data, obtained with user permission, is employed to infer the user's interests and other relevant information for filling out the user's profile on the given

online service. The inferred interests and preferences can cover a variety of domains, such as hobbies, activities, locations, events, brands, people, etc. The inferences can be made from various pieces of social media data, such as biographical information, current and past geolocation coordinates, social media connections (e.g., friends, followers, etc.), contents of photos, etc. For example, a user that has posted a lot of hiking photos on social media is likely to be deemed as interested in the activity of hiking, while someone who follows the social media account of a specific brand can be considered as likely to be interested in the products of that company.

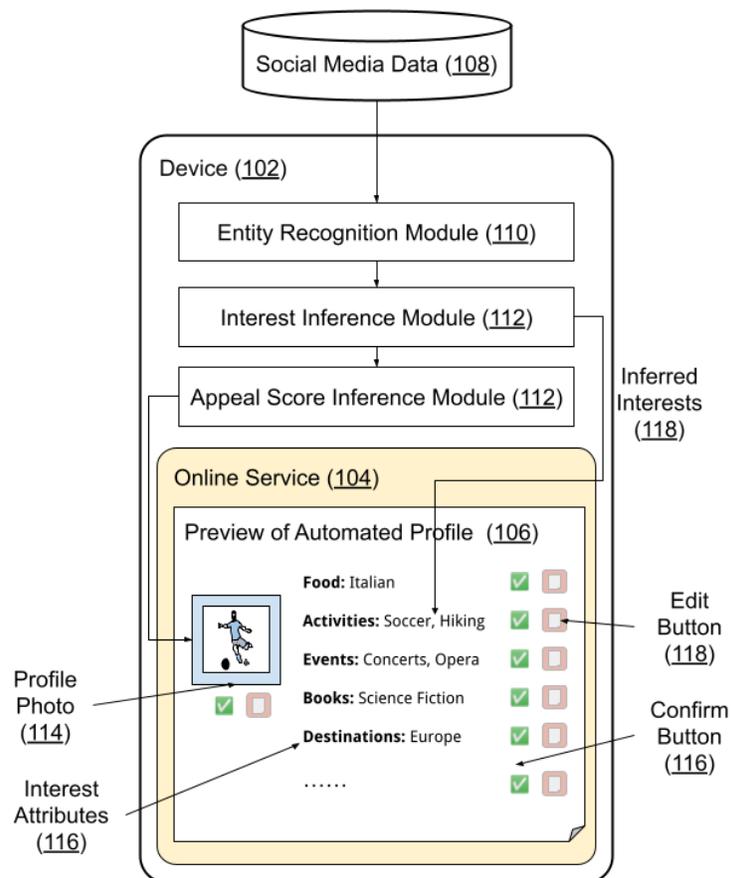
To infer user interests and preferences from the photos or videos obtained from social media, the photos can be analyzed with suitable techniques such as computer vision, statistical analysis, search, graphs of connections, etc. For instance, image recognition can be applied to identify and categorize entities in the photos; metadata can be analyzed to obtain frequency counts for the entities; search can be employed to gather additional information on the entities; and graphs of connections between entities can be used to infer implicit interests based on correlations and other affinity information. For example, a user who has posted numerous photos of a specific type of cuisine can be marked as liking specific cuisine. Similarly, a user who is frequently accompanied by others with tattoos and has liked photos containing motorcycles of a particular brand (favored by tattoo enthusiasts) can be considered highly likely to be a fan of the motorcycle brand.

The inferred interests and preferences can then be ranked to select the top ones to be used for the desired online profile being created. With user permission, selection of profile information can additionally be based on the likely appeal of that information for the intended audience. For example, the selected profile photo(s) for a dating app can represent the user's

interest and/or be likely to attract potential matches for dating. The likely appeal of a photo for the intended audience can be determined based on an appeal score derived from relevant photo metadata, such as number of likes/upvotes, shares, views, comments, etc.

All inferred information generated automatically for input to the user profile is shown to the user for confirmation prior to being included in the profile. The user can choose to confirm and accept each piece of information in the suggested input, edit it, or delete it. Once confirmed by the user, the information is posted to the user’s profile for the given online service.

Alternatively, or in addition, a suitably trained generative machine learning model can be used to emulate human writing and compose “About Me” text description of the user for the profile.



**Fig. 1: Creating an online profile with interests inferred from social media data**

Fig. 1 shows an example of operational implementation of the techniques described in this disclosure. A user is set to create a profile for a new online service (104) accessed using a device (102). With user permission, relevant data and corresponding metadata is obtained from one or more of the user's accounts on other social media services (108). The data and metadata are analyzed using suitably trained machine learning models to perform entity recognition on the content (110), infer the user's interests and preferences based on the entities and associated metadata (112), and compute a score for the likely appeal of each of the user's photos representative of the user's interests (113) for the intended audience on the new online service.

The outputs of the models are used to automatically populate various profile attributes (116) with inferred interests (118) and to add the profile photo(s) likely to be of most appeal to the intended audience (114). For instance, Fig. 1 shows that the most appealing photo suggested for the user's profile is of the engaging in the activity of interest of playing soccer. The automatically determined input is displayed as a preview of the profile (106) wherein the user can choose to edit (120) or edit (122) any of the individual pieces of information as appropriate. Once confirmed by the user, the information is posted to the user's profile on the new service.

Further, the techniques can be implemented to enable users to specify which of the automatically inferred attributes and corresponding information is to be made visible within the given online profile being constructed. The selected attributes can then be shown in a suitable format such as hashtags, bullet points, etc. The techniques can additionally include the functionality to blur photos (e.g., photos of people other than the user) or otherwise edit information, per user privacy settings.

With user permission, the described techniques can be incorporated within any service or application that includes the functionality for users to create and maintain a profile of self

information, or as a separate app that provides such functionality. A diverse variety of profile formats can be supported with appropriate mechanisms, such as an application programming interface (API). If the users permit, social media data can be obtained from the user's accounts on any social media services and/or cloud storage platforms (e.g., photo storage). With permission, such data can include objects (e.g., photos, videos, files) and other information (e.g., text, metadata, relational data such as biographic attributes, captions, button clicks, specified interests, etc.). With user permission, the operational functionality of the techniques can be made available to third parties (e.g., dating apps) via an API or other suitable techniques.

The number of top interests chosen for automatically populating the profile information can be set by the developers and/or specified by the users and/or determined dynamically at runtime. The various trained machine learning models involved in the operational implementation of the techniques can be run on the user device and/or on another device such as a server, in accordance with user-provided settings. A user's social media accounts can be accessed with any suitable mechanism that employs the credentials for the services provided by the user. For example, a user-permitted third party that provides Single Sign-On (SSO) for various social media platforms can be used to authenticate with each service to obtain the user's social media data.

Implementation of the techniques can make it easier, faster, and more convenient for users to generate and maintain online profiles that provide a faithful representation of their interests and preferences and increase their appeal to their intended audiences, thus enhancing the user experience (UX) of generating and curating online profiles.

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 social network accounts, social media and other online profiles, 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 techniques for automating the generation of a user profile for an online service. With user permission, a preview of the proposed user profile for a new service is generated automatically based on information about the user aggregated from the user's other accounts. Data from the other accounts is aggregated and analyzed to determine the user's interests and other relevant information needed for filling out the profile. The inferred interests and preferences are ranked and specific data are selected to be added to the profile, e.g., based on the likely appeal of that information for the audience on the new service. Once confirmed by the user, the information is posted to the user's profile for the given online service.