

Auto-Recommendation Based On User Entity Resolution across Multiple Social Networking Platforms

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ABSTRACT

Now-a-days, the online social networking platform has become a vital part of one's activities. As the technology is advance, more people are using device to make it easier for themself to access internet at anytime and anywhere. Because of this, more people are actively using OSNP. There are hundreds of OSNP and each focus on its own specific services and functionalities. These OSNP are often used to interact with friends including colleagues, family members etc.

Users often create several accounts on various Online Social Networking Platform to take benefit of the wide range of services and functionalities. They create profile or unique ID and constitutes its three-noteworthy measurement such as profile, content and connection network. When anyone signs up for new Online Social Networking Platform and try to link this with friend, this process is a time consuming and inefficient task; therefore is a need tofor addressing this problem. As there is no worldwide identifier to check quality especially in the online area due to which user online personalities remain unlinked, detached and un-retrievable.

Here, we address this problem for online platform Google+ and Twitter and discuss privacy and security concerns associated with using these Online Social Networking Platform.

Keywords: Social Networking Platforms, Auto Recommended System, Online Social Networking Platform (OSNP)

1. Introduction

OSNP is a computerized portrayal of its clients and (a subset of) their social associations/connections in the physical or virtual world, in addition to network services for messaging and associating among its users [1].

User ID	Claim URL
Username	First, Surname
Name	Nickname
Gender	Gender
Birthday	Birthday
Hometown	Places lived in
Current city	Currently living
Languages	Languages
Friends	People

Religion views	Personal Contact info(Phone, Email, Chat, Address)
Political views	Sites (Link, other profiles, contributor to)
Favorite quotes	Story (Tag line, Introduction)
Relationship status	Pictures
Websites	Communities
Networks	Collections
Relatives	Circles
Emails	Emails
Education (school/collage name, class, concentration, degree, type)	Education (school/university, name, main course/field of study, start date, end date, description)
Professional Experience (employer, position,	Professional Experience (Occupation, title, start

start date, end date, description)	date, end date, description)
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Table 1: Set of attributes from Facebook and Google

Different OSNP has different features, due to which users are attracted to social network for different purpose. For example, user may use LinkedIn for proficient associations while Facebook for individual associations [1], and may utilize Twitter for open data sharing whereas Facebook for confined data sharing. When user go-through services offered by every OSNP, at that point user move toward becoming member from different OSNP. On every OSNP, a user defines accounts which incorporates set of attributes (name, location, education, friends etc.) that describes his/her particularly and differentiate his/her from others. User's online character incorporates his/her username, profile, companions and that substance makes or is imparted to user. User online personality creation process on every OSNP gives his/her an extensive control on how she can give/stow away/avoid his/her character traits and in this manner his/her personality qualities may shift over various OSNP.

2. Related Work

Web elements are the building pieces of human learning and users are settling on choices among different varieties of entities. For example, recommendation systems generate lists of elements to users, however occasionally demonstrate the reasons of suggestion, for example, the uniqueness of everything to help client basic leadership.

Approach 1:

Bootstrapping: In novel calculation for uniqueness extraction keeping in mind the end goal to recover great uniqueness explanations, we figured confinements on semantic structures for uniqueness proclamations, which generally diminish the extent of inadequate and negligible sentences.

Based on our uniqueness the threshold of uniqueness verification ϵ and the number of iterations and conclusions are filtered out, leaving for the most part target proclamations.

Algorithm 1: Bootstrapping Uniqueness Extraction [2]

Input: An entity $e \in E$ in a class of entities E . A collection P of uniqueness patterns.

Output: ϵ -uniqueness properties of e within the corpus C .

Step E. Expanding the pool of entity-attribute pairs.

- 1) For a statement $s \in C$;
- 2) If s has a pattern $\pi \in P$ and the subject of s is e ;
- 3) Let p be the property of s ;
- 4) Let C_0 be a subset of C ;
- 5) Compute the uniqueness value of p with respect to C_0 .
- 6) If the portion is greater than $1-\epsilon$.
- 7) Add (e,a) into the pool of entity-attribute pairs, where a is the attribute extracted from p .

Step P. Expanding the pool of patterns.

- i) For each $e \in E$ such that (e,a) is in the pool of entity-attribute pairs for some attribute a ;
- ii) Search for structured Web for similar entities.
- iii) For similarity entity e' ;
- iv) Search for statements s containing the entity e and attribute a in C
- v) If the property p associated to s is uniqueness;
- vi) Add the associated pattern π into the pool of patterns.

Users through their exercises OSNP are leaving hints of their mastery, interests and identities. With the advances in Web mining and client demonstrating procedures. It is conceivable to use the user informal organization movement history to remove the semantics of user created content.

Tentatively assess, distinctive methodologies for entity disambiguation in OSNP in view of syntactic and semantic elements on top of two diverse OSPN: a general-interest network (i.e., Twitter) and a domain-specific network (i.e., Stack Overflow) [3].

Recovering every accessible data about a user from a few OSNP and combining it into one profile can be valuable for some reasons. In this paper, we introduce a strategy for illuminating the Entity Resolution (ER), issue for coordinating user profiles over various OSNP. This algorithm [4] can coordinate two client profiles from two different OSNP in terms of machine learning techniques, which uses features extracted from each one of the user profiles.

Utilizing supervised learning techniques and extracted highlights and developed distinctive classifiers which were prepared and used to rank the likelihood that two user profiles from two diverse OSNP belong to the same person. These classifiers used 27 elements for the most part three sorts: name

based components (i.e., the Soundex estimation of two names), general user information based elements (i.e., the cosine closeness between two-person profiles), and OSNP location based elements (i.e., the quantity of common friends between two users' companions list). For example, in November 2007, Patriquin investigated the part cover between different OSNP services [5]. He demonstrated that 64% of Facebook clients additionally have My Space records and 42% of LinkedIn clients likewise have Facebook accounts.

Distinctive classifiers are prepared and used to rank the likelihood that two client profiles from various Online Social Network Platforms have a place with a similar person. These classifiers use different components of principally three sorts:

1. Name based elements,
2. General client information based elements
3. Social network topological based elements, for example, the quantity of shared companions between the two clients' companions list.

Approach 2: An approach and a calculation to support adaptive frameworks to exceptionally recognize clients in various OSNP. Given the unique circumstance, an intriguing opportunity is to create situations that develop frameworks to benefit the conveyed learning about clients, supporting the trade and reuse of client information for adaptation purposes. This is known as "cross-framework personalization" [6]. The approach display does not require the verification information and client identification is performed by utilizing data availability on the web. In cross-framework personalization point of view, the commitment of this approach is making new opportunities for collecting more client information to achieve better results.

The algorithm gets in info the small set of known information about Billsmith and returns an arrangement of profiles related to an identification likelihood that represents the chance they have a place with the searched client. Also, it gives an arrangement of attributes, like Billsmith's age, city, interests, profession and so on acquired from the Billsmith's information incorporated into the recovered profiles. Since each ascribe is related to an identification proof likelihood, the versatile framework can choose, for everyone, to get it or not, as per its polices [7].

3. Problem Identified

Dissimilar to associations, an individual may likewise utilize these sites for a few different purposes, for instance to discover an occupation, to manufacture a system with experts, to interface with

similar individuals, and for the sake of entertainment. Attackers and spammers are likewise dynamic on these sites and may utilize them to assemble personal data.

The objective of this research is given below: -

Security Area: Attacker can use online information which is shared publicly by users on different OSNP. To increase reachability victim, attacker creates numerous account in different OSNP. To identify malicious users, security researchers have conceived features on Twitter, YouTube, Myspace, and other social networks. To increase security, linking of unintended users should be identified on different OSNP.

Privacy Area:

In this area it defines the difference in policies in different OSNP and aggregation user information available in different OSNP.

Recommendation Area:

If user wants to create the third account by combining the list of mutual friends from other two OSNP, the friends which are recommended the third OSNP is more authentic.

4. Proposed Work

This work is based on Entity Resolution on different Social Networking sites, that is, Google+ and Twitter. If the entity is matched, then the user is same on different Social Networking Site and user information on different social networking is integrated into one site.

Pseudo Code

Step 1: Deploy your application on console.google

- (a) Get Client ID and API key
- (b) Provide http port 8080 as localhost
- (c) Create the tables using Mysql, Store the information of the users.

Step 2: Deploy your application on dev.twitter

- (a) Get Access Key and Access Token
- (b) Provide http port 8080 as localhost.
- (c) Create the tables using Mysql, Store the information of the users.

Step 3: Entity Resolution using attributes (Name, Location, Gender) values attr.

Given a user is UG on Google+ SNG and set of friends {Ug1 , Ug2 ,Ug3.....,Ugn} and a user is UT and set of friends {Ut1 , Ut2 ,Ut3....., Utm} on Twitter SNT.

- (a) If attr(Ugn.SNG, Utm.SNT)-> are same. Then the profile id on SNG and SNT are same.
- (b) Else profile id is not matched.

Step 4: Fetch information from both data set.

Step 5: Update on database named matching profile.

5. Result

Now matching users' friend profile having account on different social networking platforms with their attributes for example name, location, gender, and so on are same then the user is same on both the platforms.

The response of Google+ server is converted into the dataset. Similarly, Twitter server response and its response is converted into database. Using data fetched from Google+ and Twitter server auto-recommendation is done. Using Entity Resolution, we have find out the list of common friends. The common friend is chosen on the bases of name, post, age, education.

Clients on Facebook are given a decision to make their friend list open or private. For a user with open companions, some other Facebook user can get to the user's companion list, however companion list isn't retrievable by means of Facebook Graph API. At whatever point a user progresses toward becoming companions with another user on Facebook, a robotized action encourage is made saying user X and Y are presently friends with date and time stamp. Catching such open action bolsters may not just help an aggressor to make a (fractional) companion rundown of a user consequently, yet in addition to rank them sequentially.

6. Conclusion

In this work, proposed an Entity Resolution method for user's friend profile matching in different online social networks platform. This method can discover the possible number of mutual profiles of friends refer to same user having different account on OSNP for example Google+ and Twitter. Entity Resolution method can be applied to only those users whose data is publicly available.

This work is being done on only two online social network platforms, that is, Twitter and Google+. Extension of Entity Resolution method can be applied to different online social networking platforms like Myspace, LinkedIn, Foursquare, Instagram, and Pinrest so on. Further the work can

be extended through matching of profile image and cover image matching of user.

7. Limitations

Users might not be active on both the OSNP due to which mutual friends on different OSNP can vary due to usage of the social site.

Some Social site are more secure than other OSNP. Due to which all users' data cannot be fetched in the dataset.

8. References

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