# Ontology Based User Adaptive Web Personalization

Abhijit Vaidya, Prashant khoje

B. E., Dept. of Computer Engineering, V.A.C.O.E.A, Ahmednagar, Maharashtra, India.

**ABSTRACT**: The main goal of user personalization is to offer personalized services based on users preferences and interests, thus allowing for more efficient information access. The ability to adapt users interests can lead to meaningful search results. Expectations of users from search engine growing like never be-fore to fetch and provide meaningful results for a given query and personalized results. Ontology is an explicit, formal specification of a shared conceptualization of a domain of interest, where formal suggests that the ontology should be machine-readable and shared that it is accepted by a group or community. Ontology learning, in the Semantic Web(SW) context, is primarily concerned with knowledge acquisition from and for the Web content and to tackle the massive data heterogeneity of the WWW. The concept of Ontology presented in search engines, user can get most relevant and meaningful results with respect to the users query. The most recent development in standard ontology languages is Ontology Web Language.

**KEYWORDS**: Time based adaptive user model, Privacy protection, Adaptive system, Personalized web Search, Utility, Ontology.

## I. INTRODUCTION

In this project we present a technique of the Web mining for Web personalization specifically, we introduce the modules that comprise a Web This type of the models can be implemented in all the systems where it provides the search results to the user. Even the browser can also be given extra articial intelligence with the adaptive user personalization technique.The web search engine has long become the most important portal for ordinary people looking for useful information on the web. However, users might experience failure when search engines return irrelevant results that do not meet their real intentions. Such irrelevance is largely due to the enormous variety of users' contexts and backgrounds, as well as the ambiguity of texts. Personalized web search (PWS) is a general category of search techniques aiming at providing better search results, which are tailored for individual user needs. As the expense, user information has to be collected and analyzed to figure out the user intention behind the issued query.

The solutions to PWS can generally be categorized into two types, namely click-log-based methods and profile-based ones. The click-log based methods are straightforward they simply impose bias to clicked pages in the user's query history. Although this strategy has been demonstrated to perform consistently and considerably well [1], it can only work on repeated queries from the same user, which is a strong limitation confining its applicability. In contrast, profile-based methods improve the search experience with complicated user-interest models generated from user profiling techniques. Profile-based methods can be potentially effective for almost all sorts of queries, but are reported to be unstable under some circumstances .In this section, we first introduce the structure of user profile in UPS. Then,we define the customized privacy requirementson a user profile. Finally, wepresent the attack model and formula the problem of private  cp reserving profile generalization Userquery as a input and system will give output asURL interest system will storec lickedevents as aninterested site of particular querina user profile of a user,Create user personalization using users interest,and with basic user profile (User Name, Id, Password etc..)User Personalization should be adaptive means if user searches for different

## II. RELATED WORK

In this section, we first introduce the structure of user profile in UPS. Then, we define the customized privacy requirements on a user profile. Finally, we present the attack model and formulate the problem of privacy- preserving profile generalization. User query as a input and system will give output as URLs As per user's interest system will store clicked events as a interested sites of a user for a particular query in a user profile of a user,Create user personalization using users interest, and with basic user profile (User Name, Id, Password etc..)User Personalization should be **adaptive** means if user searches for different query that will become area of interest and get results as per new interest and query. Using hierarchical structure of computing classification system (**CCS**) results will be display. Here user will get those links as a output which are present in CCS hierarchy.To get more descriptions, proposed system first collects the user interest URL on the user click and then stores into database along with the date, time and user query. As an when user enters the modeled query consequently system retrieves all the past stored queries (those were user's interest) and also shows current URLs. An addictiveness given to the system based on the time constraint which is fixed by the user. Queries older than the given time are automatically deleted from the system and make the place to new adaptation.This type of the models can be implemented in all the systems where it provides the search results to the user. Even the browser can also be given extra artificial intelligence with the adaptive user personalization technique. So that every internet user automatically get the advantage of this adaptation of user personalization, which actually enhances the way of internet usage across the globe.

## III. PROBLEM DEFINITION AND SCOPE

- In this section, we first introduce the structure of user profile in UPS. Then, we define the customized privacy requirements on a user profile. Finally, we present the attack model and formulate the problem of privacy-preserving profile generalization. User query as a input and system will give output as URLs.
- As per user's interest system will store clicked events as a interested sites of a user for a particular query in a user profile of a user,Create user personalization using users interest, and with basic user profile (User Name, Id, Password etc..)
- User Personalization should be **adaptive** means if user searches for different query that will become area of interest and get results as per new interest and query.
- Using hierarchical structure of computing classification system (**CCS**) results will be display. Here user will get those links as a output which are present in CCS hierarchy.
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## IV. MATHEMATICAL MODEL

### A)  Set Theory

1. Let S = { }be as a Adaptive User Modeling system

2. Identify input as $Q = \{ q_1, q_2 \ldots \ldots q_n \}$ where $q_i$ = number of words in the query Q  $S = \{ Q \}$

3. Identify $U_m$ as Output i.e user modelled URL's S = { Q, $U_m$ }

4. Identify process PS = { Q, $U_m$, P} P = {$P_r$,$O_r$, $U_p$,$A_d$} where
  $P_r$ = Preprocessing of query
  $O_r$ = Ontology reasoner
  $U_p$ = User personalization links
  $A_d$ = Adaptation

5. S = {Q, $U_m$, $P_r$,$O_r$,  $U_p$,$A_d$}

**B)  Mathematical model for proposed system**

1. Initialize OWL file $O_L$ = { }

2. Initialize Adaptation $A_d$ = { }

3. Initialize User Modeling $U_m$ = { }

4. Preprocessing query Q Pr = {$S_W$ , $S_T$, $T_N$}  $S_W$ = Stop word removal $S_T$ = Stemming   $T_N$ = Tokenization

5. OWL reasoner $O_r$ = {$O_l$ ,$O_i$} $O_l$ = OWL listener $O_i$ = OWL indexer

6. User model $U_m$ = { $C_i$, $P_i$, $U_i$ } $C_i$ = Captured interest $P_i$ = Process interest $U_i$ = User interest

$$U_m(X : Y) = \sum_{j=1}^{K} \sum_{i=1}^{N} U_l$$

  Where X = { i = 1,….N } is set of URL's used for user modeling. Y = { j = 1,…K } is set of adaptive queries,
  $U_l$    the user interest URL

7. Adaptive interest $A_i$ = { $A_p$ ,$A_q$ ,$A_m$ } $A_p$ = Adaptive parameter $A_q$ = Adaptive query $A_m$ = Adaptive model $f_t$ = $(t_c - t_l) > T : (Q - Uq)$

## V. FUNCTIONAL REQUIREMENT

Today, internet has become a part and parcel of our lives and one cannot imagine a world without internet, everyday millions of people use internet for various purposes mostly for information. And user is often not happy due the amount of information he has been provided with, as the user needs further filtering, which is very time consuming and expects the system to understand his/her thoughts. Understanding user is not as simple as it's said, and web personalization is one step towards to the goal. Web personalization is the process of personalizing the content as per the user or set of users, taking advantage of the knowledge acquired through the analysis of the user's navigational behavior  Web personalization can be done in the following methods
•**Implicit:** Implicit personalization will be performed by the system/web page based on the user behavior on the web
•**Explicit:** User will be able to modify the system using the features provided by the system itself.
•**Hybrid:** combination of the above.
  • **Web Usage Mining In Personalization:**
   Web usage mining can be defined as automatic discovery of user profiles. The goal of web usage mining has been to support decision making process of website owners to understand the user in a better way. However, these techniques can be used for personalization functions. Web usage mining process consists of three major phases

Web usage mining is heavily dependent on the click stream data which gets generated automatically by the application servers in the form of logs.

- **Need for Web Personalization**

Considering the amount of data and variety of users on the World Wide Web, key word based search results may not serve the purpose of providing the relevant information to the user, as each users' intention is different and the same may not reflect in the key words they use. Because of the above reasons web personalization has attracted many researchers to look into and provide a mechanism to understand the user in a better way and provide most relevant information to the user. User may not have time to fill in the data (method Explicit) describing about his/her interests, likes, dislikes, background educational qualification etc. Many web mining researchers worked on the above challenge and provided a few techniques for automatic personalization, the best example till date was Amazon where user need not give his/her details the system will fetch the relevant information to the users. The below diagram explains overview of personalization techniques.
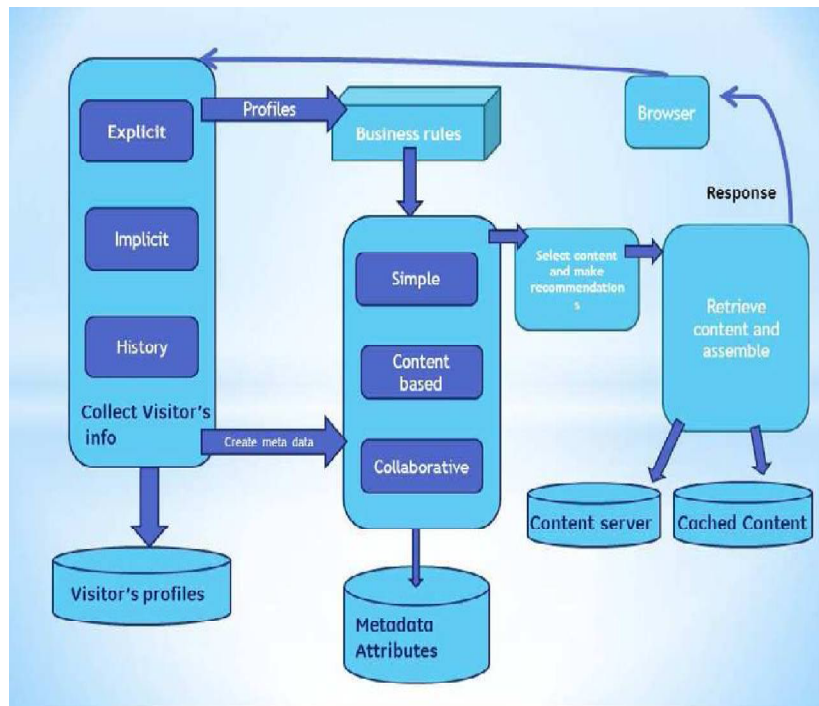


## VI. GOLAS AND OBJECTIVE

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1. The project must be completed in a time span 6 months including testing and Documentations.
2. The system must provide accurate results.
3. Perform the desired functions.
4. Provide better flexibility.
5. It can be available to user anytime, as long as internet connection is there

## VII. CONCLUSION AND FUTURE WORK

Future work in web personalization includes the in depth study on fusion of ontology and web mining techniques for effective web personalization. And how the user profiles evolves with time. This survey also identified a few areas to be explored like learning techniques including the vector space model, Genetic algorithms, and the probabilistic model or clustering in the field of web personalization. Integrating the systems like social networking and blogs and other popular websites is also a potential area to explore. Owing to the spread of mobile devices in the current era, web personalization needs to be explored on the mobile arena as well

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